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U.S. ENVIRONMENTAL PROTECTION AGENCY
TECHNICAL ENFORCEMENT SUPPORT
AT
HAZARDOUS WASTE SITES

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CONTRACT NO. 68-W9-0007
WORK ASSIGNMENT NO. R05030

DRAFT PRELIMINARY REVIEW/
VISUAL SITE INSPECTION REPORT
CHEMICAL WASTE MANAGEMENT, INC.
VICKERY, OHIO
OHD 020 273 819

RCRA FACILITY ASSESSMENT
U.S. EPA REGION V

METCALF & EDDY, INC.
PROJECT NO. 150030-0001-001

WORK PERFORMED BY:
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PROJECT NO. 10-E054-00

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DRAFT PR/VSI REPORT
CHEMICAL WASTE MANAGEMENT, INC.
VICKERY, OHIO
OHD 020 273 819
41°22'19" North
82°58'40" West

1.0 INTRODUCTION

The Hazardous and Solid Waste Amendments of 1984 (HSWA) require that releases from Solid Waste Management Units (SWMUs) be evaluated for all Resource Conservation and Recovery Act (RCRA) facilities seeking a permit. The evaluation of releases helps to establish the needs for corrective action at RCRA facilities. The evaluation of releases has been formalized in procedures of the RCRA Facility Assessment (RFA). The RFA is composed of a Preliminary Review (PR), a Visual Site Inspection (VSI), and where appropriate, a Sampling Visit (SV).

Jacobs Engineering Group Inc. (Jacobs) was subcontracted by the U.S. EPA through Metcalf & Eddy (M&E) to perform the RFA at the Chemical Waste Management, Inc. Vickery Facility (CWM-V) located at 3956 State Route 412, Vickery, Ohio, 43464. The U.S. EPA directed Jacobs to report on all SWMUs at the facility with the exception of the hazardous waste (Class I) injection wells. The injection wells are regulated under a separate authority. During the PR, several old (pre- and post-RCRA) and new SWMUs were identified at the facility. Jacobs conducted a VSI at the facility on May 8 and 9, 1990 to verify the condition of these units and to identify SWMUs and Areas of Concern (AOCs) which were not found during the PR. The Jacobs inspection team consisted of Mr. Lou Ehrhard and Mr. Ed Gorove. Mr. Jerry Lenssen of the U.S. EPA was present on May 9. Messrs. Dave Fergusson and Jeff Steers represented the Ohio EPA (OEPA) on May 8 and May 9, respectively. Mr. Steve Lonneman, Plant Engineer , represented CWM-V both days. He was assisted by Fred Nicar, General Manager (telephone 419-547-7791), on May 8 and Michael Curry, Engineering Manager (telephone 419-547-6144), on May 9. At the end of the VSI, 45 SWMUs and 5 AOCs were identified (Table 1). This report presents the results of the PR and VSI portions of the RFA performed by Jacobs at CWM-V.

2.0 FACILITY AND PROCESS DESCRIPTIONS

2.1 General Information

The Chemical Waste Management, Inc. Vickery Facility (CWM-V) is located in an unincorporated area of Sandusky County, Ohio (see Figure 1). It is bordered on the south and east by State Highways 412 and 510, respectively, and on the north by the Ohio Turnpike (I-80/90). Access to the facility is via Highway 412 along the south edge of the site. Meyers Creek borders the main part of the property on the west, to County Road 244. The geographic coordinates of this location are north latitude 41 22'19" and west longitude 82 58'40". [3]

The facility is located in a rural area, and is bounded, except for the aforementioned highways, by active farms, with three scattered residences within 1/2 mile. The unincorporated community of Vickery lies 2 miles to the northeast, and the cities of Clyde and Fremont lie 4 miles to the south and 6 miles to the west, respectively. The facility property encompasses 437 acres. The facility operations are conducted on 97 acres and the remainder is rented out as farmland. [1,3]

CMW-V currently operates as a treatment, storage, disposal facility for liquid hazardous wastes. The wastes are stored and treated in above ground tanks, filtered, blended, and disposed of by deep well injection through four (4) Class I injection wells. [1,2,3]

Historically, the facility has handled aqueous hazardous wastes (mostly acids) and waste oils. These two waste types were treated together in twelve large surface impoundments at the facility. The oil was skimmed, graded, and resold. The aqueous waste was deep well injected. These waste disposal practice continued until 1983.

Remnants of the previous waste handling process are still observed at the facility today. Ponds 11 and 12 are inactive but have not been closed. Ponds 4, 5, and 7 have been drained and excavated. The excavated sludge has been fixed and deposited in a large waste pile. The Oil Reclamation Facility has also been removed to the Waste Pile. The Waste Pile will eventually be landfilled in the TSCA/RSRA Closure Cell located where Ponds 4, 5, and 7 once were.

RCRA

2.2 Operational and Regulatory History

The CMW-V facility was first operated by Ohio Liquid Disposal, Inc. (OLD). OLD was organized in 1958 to provide a service to various industries by gathering waste oils, hauling these oils to a central facility and recovering these oils for eventual resale. In 1961 the operation was expanded and a small quantity of liquid industrial wastes were hauled to the facility. These liquid industrial wastes were held in small ponds along with the oily wastes. In 1964 the first pond was constructed to specifically impound the wastes which were separated from the oils. At this time the facility was known as Don's Waste Oil. [17]

In the original operations, waste oil was received and stored or used in road oiling operations. In its beginnings the firm constructed liquid waste holding ponds on the site with the intention presumed to be toward getting a better quality of oil from the sedimentation action the ponds would provide. The system eventually grew into handling other types of liquid wastes in addition to the waste oil. [17]

Liquid and semi-solid wastes delivered to the facility were analyzed before receipt. The wastes went to the oil recovery system, reduction/oxidation system or directly to surface impoundments depending on the nature of the wastes before ultimate disposal by deep well injection. [17]

The types of wastes received were grouped by OLD into the following chemically-descriptive areas:

1) Acids:

    1) Pickle liquors including sulfuric, hydrochloric, nitric, hydroflouric acids and mixtures of these with various dissolved metals

    2) Chromic acid and sulfuric acid-dichromate mixtures

    3) Ferric and cupric chloride

    4) Organic acids and their degradation products

2) Alkalis:

    1) Caustic soda stripping solutions

    2) Carbonate-phosphate wash solutions

    3) Ammoniacal copper solutions

    4) Mixed plating wastes

    5) Lime slurries and sludges

    6) Phenolic stripping solutions

3) Other Aqueous Wastes:

    1) Glycols

    2) Water soluble alcohols, ketones and esters

    3) Brines, including ammonium, phosphate and nitrate salts

    4) Large molecular weight biodegradable organics

    5) Fats and oils of vegetable and plant origin

4) Oily Wastes:

    1) Contaminated oils and oil sludges

    2) Oil-water emulsions

The oil recovery system began by draining waste oils from trucks into ponds where sedimentary processes would allow the oil to rise to the pond surface. This floating oil would be recovered and used in road oiling practices or as low grade fuel oil. To speed up the oil separation process, other wastes (acids) acting as catalysts were added to the oil ponds as needed. [17]

Normally, chemical wastes like the acids and alkalis would be discharged into the surface impoundments if the wastes are determined to have little effect on the consistent quality desired to be maintained in these ponds. Any caustic or unstable materials receive pretreatment at the reduction/oxidation unit before further handling at the OLD facility. Adjustment of the pH by chemical addition acidifies the alkaline wastes. Wastes that are chemically unstable, such as caustic sulfides and low concentration aqueous cyanides, were treated with chemicals that reduce or oxidize these materials into stable compounds. [17]

In the early 1970s, OLD was accepting more aqueous waste than the surface impoundments could handle. Until this time OLD had relied on evaporation of the aqueous wastes as a means of disposal and more surface impoundments were constructed as they became needed. By 1972 all twelve surface impoundments had been constructed and were in use (Figure 2). OLD began exploring the possibility of disposing of the aqueous waste by deep well injection. [2, 14,15]

In July, 1975 OLD received its first permit to operate a hazardous waste injection well. By January, 1976, three more permits were granted. The Class I injection wells were completed approximately 2800 feet below the surface in the Mt. Simon Sandstone. [2]

Each injection well is capable of disposing of up to 45,000 gpd of aqueous waste. The waste being injected must be filtered, have a pH near 1, and a relatively constant chemical makeup to assure there is no precipation in the casing or formation. Four injection wells are currently used a the facility (IW-2, IW-4, IW-5, and IW-6). Three others have been plugged and abandoned (IW-1, IW-1AM IW-3) (see Figure 3 and 6). [2, 14, 15]

Towards the late-1970s OLD began closing some of the surface impoundments by draining them and mixing sludges with foundry sand and cement kiln dust. Some of the sludges were landfarmed at the three landfarms areas at the facility (see Figure 3). Chemical Waste Management, Inc. (CWM) acquired the facility from OLD in 1978.

CWM continued the same operations at the facility, including closure of the older surface impoundments, until 1983. In March of 1983 it was learned that CWM-V was falsifying analytical data on PCB-contaminated waste oils being accepted by the facility. An investigation followed and revealed that much of the Oil Reclamation Facility and Ponds 4, 5, 7, 9, and 11 were contaminated with PCBs. [2, 3, 14, 15]

Because of the widespread PCB-contamination, CWM-V agreed not to accept any more waste oil. In May 1984 a Consent Decree was signed between OEPA and CWM ordering CWM-V to remediate the facility to bring it into compliance. A similar Consent Agreement and Final Order (CAFO) was signed in April 1985 (see Table 2). [2, 14, 15, 27]

Most of the remediation of the PCB contamination took place between 1983 and 1986. Several hundred thousand gallons of PCB-contaminated oil was disposed of off-site. Those oils with PCB concentrations above 500 ppm were incinerated. Contaminated soils and sludges from Ponds 4, 5, and 7 were fixed by mixing with cement kiln dust, The fixed sludges were placed in a large waste pile overlying the area Ponds 1, 2, and 3 previously occupied. The Oil Reclamation Facility was dismantled and placed in the waste pile. Leachate from the Waste Pile collected in the Leachate Retention Pond just east of the Waste Pile (Figures 4 and 5). [2, 14, 15]

In early 1988, a TSCA/RCRA Closure Cell was constructed over the area previously occupied by Ponds 4, 5, and 7. CWM-V received U.S. EPA approval to landfill the Waste Pile into the Closure Cell on November 7, 1988. However, Land Disposal Restrictions became effective on November 8, 1988 prohibiting the land disposal of these wastes. This issue has not been resolved to date. [14, 15]

Currently the facility receives only aqueous wastestreams. All wastes are handled in a closed tank system before deep well injection. Ponds 11 and 12 are inactive and pumped out but still collect rainwater which mixes with the residual contamination. The contaminated water is deep well injected. The Leachate Retention Pond also contains aqueous hazardous waste which is routinely deep well injected. [14, 15]

A complete summary of the facility's regulatory history is included in Table 2.

2.3 RCRA Waste Handling

CWM-V currently receives a large variety of liquid hazardous wastes. The waste types can best be classified as waste pickle liqours (dilute, hydrochloric, sulfuric, and chromic acids), hydroflouric and nitric acid wastes, caustic wastes, neutral waters (organic wastewaters), and other aqueous wastes generated onsite (Waste Pile leachate, Ponds 11 and 12 water). In the future CWM-V hopes to also treat and dispose of oil wastes, slurries, and drummed wastes. These wastes would be handled at the proposed Container Handling Facility. CWM-V will not accept for treatment at the facility radioactive wastes, infectous wastes, explosive or shock-sensitive wastes, air-reactive wastes, water-reactive wastes, compressed gases, reactive wastes that generate dangerous quantities of toxic or explosive gases when acidified, bulk ignitable wastes, bulk wastes containing >5% VOCs, or wastes that the General Manager deems cannot be properly or safely managed at the facility. A complete listing of RCRA Wastes handled at the CWM-V is included in Tables C-3 and C-4 in Attachment A of this report. [3]

All hazardous wastes received and managed by the facility are delivered by truck. The truck unloading facility consists of: truck unloading and wash building; sand interceptors; sump and sump tanks; waste head-gas scrubber; and solids handling unit. A broad range of organic and inorganic liquids are handled by the truck unloading facility. The waste is offloaded in one of three unloading bays and flows into a sump. It then flows to and through one of four sand interceptor boxes and into one of four waste receiving tanks (V-Tanks). The Drum Storage Pad handles the solids separated from the wastes in both the sand interceptors and the hydrocyclones (which remove solids from the storage and treatment tanks not removed by the sand interceptors. [3]

Wastes are pumped from the V-Tanks to the T-Tanks at the New Tank Farm (see process flow diagrams in Attachment B). Wastes are no longer being treated or stored in the two remaining surface impoundments (Ponds 11 and 12). Liquids in the T-Tanks are pumped through the leaf filters and/or filter presses to remove suspended particles. Wastes are then blended for injection in the T-Tanks. The blending insures a relatively constant pH and chemical profile of the wastes injected. [14, 15]

After blending the aqueous wastes are pumped to Filtered Acid Tanks (FATs) near the four injection wells. The FATs are essentially surge tanks so that the liquids can be injected at a constant pressure. The liquid wastes go through a final polish filter (5 microns) in the pump house to remove fine particles before deep well injection in wells IW-2, IW-4, IW-5, AND IW-6. [14, 15]

2.4 Non-RCRA Waste Handling

Four (4) non-RCRA SWMUs were identified during the PR/VSI: the Waste Lube Oil Tank, the Sanitary Wastewater Treatment Plant, the Truck Unloading Area Cesspit, and the Maintenance Building Cesspit. The Waste Lube Oil Tank lies just west of the Maintenance Building and receives waste oils generated from maintenance of facility vehicles and machinery. The 1,000 gallon tank is above ground and bermed. The waste oil is sent off site for disposal. [14, 15]

The Sanitary Wastewater Treatment Plant is a relatively small treatment plant which handles sanitary wastes generated at the facility. The sanitary wastes are collected in two "cesspits" or tanks. One is located at the Truck Unloading Facility and the other is at the Maintenance Building. Waste are transported by vac-truck to the treatment plant. Sanitary waste is treated in in-ground concrete vaults by aeration and chlorination. Treated liquid is transferred by vac-truck to the T-Tanks for blending and deep well injection. Solid waste is removed and disposed of off site. [14, 15]

3.0 ENVIRONMENTAL SETTING

3.1 Climate and Meteorology

Vickery, Ohio is characterized as a temperate climactic zone. The average annual precipitation is about 32 inches. The average annual evapotranspiration rate is 26 inches, yielding a net precipitation rate of 6 inches per year. The 1-year 24-hours rainfall is about 2.2 inches. The prevailing wind direction, as measured in Toledo, Ohio, is to the west-southwest. [3,38,39,40]

3.2 Surface Water and Floodplain

The topography of the site is relatively flat, with a gentle downward slope to the north. Natural drainage of surface waters from the facility and adjacent areas is to Meyers Creek, which transects the western portion of the facility, and Little Raccoon Creek, which is just east of the facility. Approximately 0.5 miles north of the site Meyers Creek enters Little Raccoon Creek, which ultimately discharges to Sandusky Bay about 5 miles north (Figure 1). [3,40]

The facility property does not lie within the 100-year floodplain. However, the 100-year flood boundary for both Meyers and Little Raccoon Creeks is located just north of the facility across the Ohio Turnpike.

3.3 Geology and Soils

Glacial Overburden

The facility is underlain by 33 to 52 feet of glacial overburden. The overburden is comprised of glacial lacustrian deposits overlying two till units. The glacial deposits overlie a predominantly dolomitic bedrock. A 500 to 550 foot thick sequence of Devonian and Silurian age dolomite deposits are found under the glacial overburden. [2]

The uppermost deposit is comprised of lacustrian materials. This deposit is thought to have been deposited in a pro-glacial lake. The deposit is described as having horizontal laminations of silty clay with occasional fine sand between the laminations. In the area around the facility, this deposit ranges from 0 to 25 feet in thickness. The most recent boring program for the facility revealed that the lacustrian material is generally absent south of State Route 412. [2]

Glacial till underlies the lacustrian deposit. The till is divided into an upper unit that is continuous across the site and a lower unit that is discontinuous. The upper till unit ranges from 11 to 38 feet in thickness while the lower till unit is less than 13 feet thick. The upper till unit generally consists of silty clay to clayey silt with some sand and gravel, and is relatively homogeneous with no distinct depositional structures (e.g., bedding or laminations). The lower till unit is comprised of silt with some clay, sand and gravel. The lower till is more dense and more coarsely graded than the upper till unit. [2]

Some fine sand and/or silt deposits have been encountered in the glacial tills. Materials that can be classified as predominantly sand were found in four borings over a total interval of 5.7 feet. The sand layers were found at a depth of 20 to 30 feet in the area of the TSCA/RCRA Disposal Cell. Pond 4, 5, and 7 previously occupied this area. [2]

The upper 5 to 10 feet of glacial overburden has been desiccated (i.e., dried out). Desiccation cracks are common in the upper portions of the uppermost deposits. Below the limit of desiccation the lacustrian and upper till deposits are usually soft with relatively high moisture contents and are nearly normally consolidated. The lower till appears more consolidated than the upper till based upon descriptions of this deposit. [2]

Bedrock

The Tymochtee Dolomite, middle member of the Bass Island Formation, is immediately under the glacial tills. It is approximately 150 feet thick under the site. The Tymochtee is underlain by the Greenfield Dolomite (also Bass Island Formation). Underneath the Bass Island Formation is the Lockport Formation. The "Big Lime" is an informal driller's name for this carbonate geologic sequence. [2]

The Tymochtee Dolomite is generally described as thin bedded, gray-brown, very fine grained dolomite with solution zones and evaporate beds (anhydride and gypsum). This dolomite unit is interbedded with shale and exhibits parting in which gypsum and calcite have formed as secondary filling. The Tymochtee Dolomite has been cored to a depth of 125 feet beneath the site. [2]

A major bedrock valley exists approximately 1 mile west of the facility and trends north-south. The eastern side of the buried valley on which the facility is located has a uniform slope, with no other major buried valleys intersecting it. The top of the bedrock under immediately around the site indicates a bedrock ridge south of the facility that trends southwest-northeast. The bedrock beneath the facility is gently sloped to the north. [2]

3.4 Groundwater

The water table in the glacial deposits is 2 to 5 feet beneath the surface. The glacial deposits are not used as a source of domestic or commercial water supply. The overall direction of groundwater flow in the glacial deposits is the northwest, generally the direction of the ground surface slope. [3]

Potentiometric levels for the glacial till are lower than potentiometric levels for the lacustrian deposits. This indicates a downward gradient and a vertical component of groundwater flow down towards the dolomite aquifer. This downward gradient was even more pronounced when the surface impoundments were filled with liquid waste, due to the large head differences. [2,40]

The major source of groundwater underlying the site is the confined bedrock aquifer that is composed of the Tymochtee Dolomite, Greenfield Dolomite, and Lockport Dolomite. These formations display prominent jointing, fracturing, and solution features that enhance their porosity, transmissivity, and storativity. The major groundwater recharge area for the aquifer is a Karst area located approximately three to 10 miles southeast of the site. Here the Tymochtee bedrock surface rises to within a few feet of the surface, which displays sinkholes and other Karst features. Although Karst topography is reported to exist near the site, no major Karst features have been identified at the site. [2,40]

Potentiometric data collected over a period of several years indicate that the regional groundwater flow in the upper dolomite aquifer is toward Lake Erie in a north-northwesterly direction. The data also shows seasonal fluctuations in the potentiometric surface for the bedrock aquifer locally and regionally, indicating that the head levels are controlled by the net precipitation. Aquifer heads within the region commonly increase during the winter to a high level in March, and then decrease to a low level in August. [3]

The local potentiometric surface, and to some extent the regional potentiometric surface, are affected by pumping of site wells and other nearby off-site wells. Groundwater monitoring data at the site show head response to pumping of site wells and other nearby off-site wells, indicating a good hydraulic connection throughout the confined aquifer. Earlier groundwater data, which illustrates the effect of site pumping during periods of heavy industrial groundwater withdrawal activity at the facility, show groundwater flow radially in toward the site and the pumping well. [3]

3.5 Receptor Information

The facility is located in Sandusky County, a rural, lightly populated region of Ohio primarily consisting of farm and pasture land with some light industry. The population of Sandusky County is 63,267. The nearest towns are Clyde (population 5,489, four miles south) and Fremont (population 17,834, six miles west). The residence closest to the site is an unoccupied house on the CWM property, located south of the facility across State Route 412. There are three other residences within 0.5 mile of the facility. Seventeen residences, including the facility general manager's, front the local access route within one mile of the facility entrance. Numerous residences and a turnpike service plaza are located within four miles of the facility. [40]

The CWM-V obtains its process water from the on-site groundwater wells. The facility's drinking water is trucked in from off site and stored in underground systems. Off-site water supply wells, including seven in the immediate vicinity, generally draw from the shallow dolomite bedrock aquifer up to a depth of several hundred feet. An estimated 92 private off-site water supply wells are located within a three-mile radius of the Vickery site. Many of these wells are used only for agricultural purposes, such as irrigation of crops and watering of livestock. It is not known how many of these wells are used for domestic drinking water supply. [40]

There are no known surface water intakes for potable water systems downstream of the Vickery facility. [40]

4.0 RELEASE PATHWAYS

4.1 Soil/Groundwater

The potential for releases to soil and groundwater at CWM-V vary depending on the nature of the SWMU. SWMUs with adequate secondary containment have a low potential for releases to soil and groundwater. However, before the mid-1980s most SWMUs at CWM-V did not have adequate secondary containment and releases to the soil were not uncommon.

Most of the medium-size historical releases (50 to 5,000 gallons) resulted from failures of the PVC waste transfer lines which carry liquid waste between surface impoundments, tanks, filter buildings and pumphouses. These releases probably impacted the soil but had little effect on the groundwater because of the low permeability of the clay soil. Many of the releases were treated with lime and the contaminated soils removed. [4]

The unlined surface impoundments have had the greatest impact on the soil and groundwater at the site. The increased hydraulic head when the surface impoundments were filled with liquid wastes contributed to deeper and more pervasive contamination of soil beneath the surface impoundments. Although several feet of contaminated clay were removed from Ponds 4,5, and 7 during closure, additional contaminated soil may remain. This is because PCBs, a relatively immobile contaminant, was used to assess the soil removal, rather than using more-mobile volatile organics or chromium. Contaminated soils in the other closed surface impoundments also were probably not adequately remediated. [2, 8, 9]

The surface impoundments have impacted the shallow groundwater in the lacustrian clay unit. Waste constituents found in the shallow monitoring wells include volatile organic compounds and chromium. The deeper bedrock aquifer may also be impacted but the data is not conclusive. Because the clay has a low permeability and the bedrock has a high permeability, any contaminants migrating to the bedrock aquifer may be quickly diluted. [2]

4.2 Surface Water

Several large releases of liquid hazardous waste to both Little Raccoon Creek and Meyers Creek have been documented. In 1979 a spill of up to 96,000 gallons of hazardous waste from the Pond 7/Pond 11 transfer line reached Meyers Creek. The waste was reportedly pumped out. On March 3, 1986, approximately 75,000 gallons of Waste Pile leachate was accidently released to Little Raccoon Creek through gate G-1 at the Leachate Retention Pond. Subsequent testing of the creek water showed little contamination present. Many other smaller releases and possible releases have been recorded. Due to the nature of the wastes, predominantly acids, detection of historic releases to surface water should be made by analyzing sediments for total metals, PCBs, and semi-volatile organics. [4]

A Surface Water Management Plan, approved by OEPA, has been implemented at the facility. The plan consists of bermed areas and flood gates which can be closed in the event of major spills (photo #63). [3]

4.3 Air

Several releases to air and many citizens' complaints of foul-smelling odors emanating from the facility have been documented. Early complaints of foul odors resulted from treatment of odorous pharmaceutical wastes (phenolics and other organics) in surface impoundments. These wastes were later treated in the W-Tanks at the Old Tank Farm. On December 9, 1980, the cyanide reactor at the Oil Reclamation Facility blew up. 5,000 gallons of cyanide waste was released to the air, although CWM-V maintains the cyanide had completely reacted and was harmless. Several releases of NO_X gases from surface impoundments due to inadvertent mixing of reactive wastes have been documented. Particulate and gaseous releases occurred from the mixing of lime with sludges during Ponds 4, 5 and 7 closure activities. NO_X gases have also been released from the Waste Head-Gas Scrubber. During the VSI, acidic odors were noted downwind of Ponds 11 and 12. These odors were very strong at the edge of the Ponds. [4,14]

4.4 Subsurface Gas

There is a low potential for generation and migration of subsurface gases at the facility. This is due to the types of wastes handled, predominantly acids, and the low permeability of the natural clay soils.

5.0 SOLID WASTE MANAGEMENT UNITS

This section provides information on SWMUs identified during the PR/VSI. Conclusions about the potential for releases to soil/groundwater, surface water, and air, and also the potential for subsurface gas generation are given for each SWMU. Recommendations for further action at each SWMU are also provided.

1. <u>Unit Type</u>: Pond 1

Regulatory Status: SWMU, Closed Pre-RCRA

A. **Unit Description:** Pond 1 is a 430'L x 90'W x 12'D unlined surface impoundment which received waste oils and other unknown constituents. Pond 1 was closed by removing liquid and sludge to Pond 4 and backfilling with Pond 9 sludges, earth and some demolition material, such as rock and concrete. The impoundment was located in the northeast portion of the facility, east of Pond 4. The area for the temporary waste pile is superimposed over the area where Pond 1 was located (Figure 2). [2, 4, 9, 10, 11, 12]

B. **Age:** 29 years
Period of Operation: 1961-1977; closed April 18, 1980

C. **Waste Type:** Waste oils, caustics, acids, pickle liquors, Pond 9 sludges, unknowns
Waste Volume/Capacity: 2,300,000 gallons
Waste Constituents: PCBs, D004-D011 Metals, VOCs, PAHs, unknowns

D. **Release Controls:** Earthen Dikes

E. **Release History:** On January 19, 1973 the dike walls of Ponds 5, 4 and 1 broke, allowing an unknown amount of liquid to flow onto soil adjacent to Pond 1 [4].

F. <u>**Conclusions:**</u>

Soil: There is a high potential for release of hazardous constituents to soils both surrounding and underlying Pond 1. The 1973 dike failure released wastes to adjacent soils. It is not known where the area of contamination was or if it was remediated. Because the pond had no liner, contaminants have likely migrated into the underlying clay [9]. Although PCBs were detected in the sludges, no PCBs were found in the clay. However, there is no soil data on more mobile contaminants such as halogenated organics.

Groundwater: There is a high potential for release to groundwater. The lack of an impermeable liner in the pond indicates that hazardous constituents may have migrated into the groundwater at the base of the pond. This is especially true when the pond was filled during its period of operation; the increased hydraulic head may have caused noticeable groundwater mounding. The repeated detection of 1,2-Dichloroethane in well L-19 southwest of Pond 1 may be evidence of a release to groundwater [2]. Natural clay beneath the pond may only be slowing the ground-water migration of contaminants.

Surface Water: There was moderate potential for release to Little Raccoon Creek due to the dike failure in 1973. Presently, the potential is low because the pond has been backfilled and buried beneath the Waste Pile.

Air: There was a high potential for releases to air before Pond 1 was backfilled. Currently there is a low potential for releases; the Waste Pile overlies the area.

Subsurface Gas: There is low potential for releases of subsurface gas. Although substantial concentrations of VOCs may be present in sludge and soil, clays surrounding Pond 1 would limit the production and mobility of subsurface gases.

G. **VSI Observations**: Pond 1 could not be observed because it has been backfilled and subsequently covered by the Waste Pile generated by the closure of Ponds 4, 5, and 7, and the Oil Reclamation Facility (photograph #32).

H. **Sample Results**: Environmental Testing & Certification (ETC) analyzed soil and sludge samples from Pond 1 in 1983. The analyses indicated PCBs present in concentrations of 0-335 ppm. The PCBs are found in sludges from 6-10 feet below the top of the dikes [8, 9]. 1,2-Dichloroethane has been detected repeatedly in Well-L19 at the southwest corner of Pond 1 [2]. CWM attributes the detects to cross-contamination from surficial soils due to poor well-installation procedures.

I. **Suggested Further Actions**: If monitoring well L-19 is determined to be defective, it should be replaced. Continue groundwater assessment monitoring to evaluate migration of contaminants from Pond 1.

2. **Unit Type**: Pond 2

Regulatory Status: SWMU, Closed Pre-RCRA

A. **Unit Description:** Pond 2 is a 320'L x 100'W x 12'D unlined surface impoundment which received various waste types. During closure, liquids and possibly some sludges were removed to Pond 4. Sludges from Pond 2 were solidified by fixing with foundry sand and lime kiln flue dust. The fixed sludge was left in place and covered with demolition debris. The impoundment is located in the northeast portion of the facility, north of Pond 1. The Waste Pile is superimposed over the area where Pond 2 was located (Figure 2). [2, 4, 9, 10, 11, 12]

B. **Age:** 28 years
Period of Operation: 1962-1977; closed September 1, 1979

C. **Waste Type:** Waste oils, caustics, acids, pickle liquors, unknowns
Waste Volume/Capacity: 3,400,000 gallons
Waste Constituents: PCBs, D004-D011 metals, VOCs, PAHs, unknowns

D. **Release Controls:** Earthen dikes

E. **Release History:** Unknown

F. **Conclusions:**

Soil: There is a high potential for release of hazardous constituents to the underlying soil. Pond 2 had no liner during its period of operation. Hazardous constituents including PCBs were in direct contact with the underlying clay soils. PCBs currently exist in the sludges of the closed pond [8, 9]. No PCBs were found in the underlying soil, however, there is no soil data on more mobile contaminants such as halogenated organics.

Groundwater: There is high potential for release to groundwater. The lack of an impermeable liner in the pond indicates that hazardous constituents may have migrated into the groundwater at the base of the pond. Natural clay beneath the pond may only be slowing the groundwater migration of contaminants. Monitoring well L-26 south of Pond 2 has detected high levels of total organic halogens (TOX) [2].

Surface Water: There is a low potential for surface water releases. The pond's dikes were made of clay. Sludges have been fixed in place and buried beneath demolition debris. The Waste Pile currently lies on top of the area of Pond 2.

Air: There was a high potential for releases to the air before the pond was backfilled. Currently there is a low potential for air releases; the Waste Pile overlies the area.

Subsurface Gas: There is a low potential for releases of subsurface gas. Although substantial concentrations of VOCs may be present in sludge and soil, clays surrounding the pond would limit the production and mobility of subsurface gases.

G. **VSI Observations**: Pond 2 could not be observed because it has been backfilled and subsequently covered by the Waste Pile generated by closure of Ponds 4, 5, and 7, and the Oil Reclamation Facility (photograph #32).

H. **Sample Results**: ETC analyzed soil and sludge samples from Pond 2 in 1983. The analyses indicated PCBs present in concentrations of 0-146 ppm. The PCBs are found in Sludges 3-12 feet below the top of the dikes [8, 9].

I. **Suggested Further Actions**: Continue groundwater assessment monitoring to evaluate migration of contaminants from SWMU.

3. Unit Type: Pond 3

Regulatory Status: SWMU, Closed Pre-RCRA

A. **Unit Description:** Pond 3 is a 230'L x 150'W x 16'D unlined surface impoundment which received oily wastes and acids. The sludges from Pond 3 were landfarmed and the pond backfilled with clean earth. The impoundment is located in the northwest portion of the facility, north of Ponds 1 and 2. The area for the temporary waste stockpile is superimposed over the area where Pond 3 is located (Figure 2). [2, 4, 9, 10, 11, 12]

B. **Age:** 28 years
Period of Operation: 1962-1976; closed October 30, 1977

C. **Waste Type:** Waste oils, caustic acids, pickle liquors, unknowns
Waste Volume/Capacity: 2,600,000 gallons
Waste Constituents: PCBs, D004-D011 metals, VOCs, PAHs, unknowns

D. **Release Controls:** Earthen dikes

E. **Release History:** Unknown

F. Conclusions:

Soil: A release of PCBs to the clays underlying Pond 3 has been documented [8, 9]. It is likely that more mobile contaminants, such as halogenated organics, have also been released to the soil and have migrated to a greater extent than the PCBs.

Groundwater: The potential for release to groundwater is high. The lack of an impermeable liner suggests that hazardous constituents may have migrated to the groundwater at the base of the pond. The presence of PCBs in the underlying clays is further evidence of vertical migration of contaminants [8, 9].

Surface Water: There is low potential for surface water releases for Pond 3. The pond's dikes were made of clay. The pond has been backfilled and currently underlies the Waste Pile.

Air: There was a high potential for releases of acids and volatile organics to air before the pond was backfilled. Currently, there is a low potential for air releases; the Waste Pile overlies the area.

Subsurface Gas: There is a low potential for releases of subsurface gas. Clays surrounding the pond would limit the production and migration of subsurface gases.

G. **VSI Observations:** Pond 3 could not be observed because it has been backfilled and subsequently covered by the Waste Pile (photograph #32).

H. **Sample Results**: ETC's 1983 solid and sludge sampling results indicated PCBs present from 3-6 feet below the tops of the dikes. PCB concentrations in sludges were 0-156 ppm. PCB concentrations in clays beneath the pond were 8-32 ppm [8, 9].

I. **Suggested Further Actions**: Continue groundwater assessment monitoring to evaluate migration of contaminants from Pond 3.

4. <u>Unit Type</u>: Pond 4

Regulatory Status: SWMU, Inactive but not closed

A. **Unit Description:** Pond 4 is a 900'L x 190'W x 17'D unlined surface impoundment which was used for treating waste oils with waste acids. Oil was skimmed off the top of the pond using a boom skimmer located between Ponds 4 and 5. The skimmed oil was stored in two skim oil tanks, one 12,000 gallons and one 18,000 gallons Sediments would settle to the bottom of the pond and the acidic aqueous wastes would be pumped to Pond 5. [2,4,9,14,17]

During the late 1970s and early 1980s, the southern half of the Pond 4 was filled in with sludges generated from the closing of several ponds. As required by the CAFO, closure of Pond 4 commenced in early 1985. Aqueous wastes were pumped to Ponds 11 and 12. Sludges were fixed by mixing with cement kiln dust in 1985. The fixed sludges (149,552 cuyds) were then placed in temporary storage in the Waste Pile. Excavation to the native clay was completed and approved by OEPA on December 23, 1985. The dikes were then pushed in and additional contaminated material removed. The TSCA/RCRA Closure Cell has since been built over the area of Ponds 4, 5, and 7, awaiting transferral of wastes from the Waste Pile. The area of Pond 4 currently underlies the eastern third of the Closure Cell (Figure 2). [2,4,10,11,13,14,17,18,19,22]

Aqueous wastes were pumped to Ponds 11 and 12.

B. **Age:** 27 years
Period of Operation: 1963-December 1985

C. **Waste Type:** Waste oils, caustics, acids, pickle liquors, used filters, sludges, phenolic wastes, unknowns
Waste Volume/Capacity: 21,000,000 gallons
Waste Constituents: PCBs, D004-D011, Metals, VOCs, PAHs, dioxins, unknown

D. **Release Controls:** Earthen dikes

E. **Release History:** A January 19, 1973 breakage in dike walls between Ponds 5, 4, and 1 allowed an unknown amount of liquid to flow from Pond 5, into Pond 4 and into Pond 1, and then to soil adjacent to Pond 1. Numerous complaints of air releases from the open ponds, especially during sludge fixation, were noted. [31,33]

F. **<u>Conclusions</u>:**

Soil: Releases to soils underlying Pond 4 has been documented. Seeps emanating from the east slope of the pond after the initial excavation in 1985 indicated VOCs and PCBs present [20]. Even after the final excavation of the pond, residual contaminants were detected in soil samples [19]. Further contaminated material was discovered and removed when the dikes were pushed in [18,19].

Groundwater: There is a high potential for releases to groundwater as evidenced by contaminants in seeps from beneath the pond [20]. Contaminants included PCBs, halogenated and non-halogenated volatile organics, and possible metals. The water table in the lacustrian deposits is above the base of the pond [2]. Monitoring Wells L-16 and L-19 have shown contamination [2]. Installation of the capillary drainage system for the closure cell may reduce the migration of contaminants from the SWMU by lowering the hydraulic head [21].

Surface Water: There is a high potential for releases of hazardous constituents to the turnpike drainage ditch north of the Closure Cell. Currently, the capillary drainage system drains groundwater from beneath the closure cell directly to the drainage ditch [14]. There is no permit for this discharge [14]. At least 6 inches of clay should lie between the zone of residual contamination and the drainage system [19, 21]. It is likely that contaminated groundwater beneath Pond 4 is discharging through the capillary drainage system to the expressway ditch.

Air: Based on calculations and data collected in 1983, open ponds have released numerous VOCs and inorganic acids to the air [29,30,33]. However, since the pond was excavated and the closure cell constructed, there is currently a low potential for air releases.

Subsurface Gas: There is a moderate potential for releases of subsurface gas to the capillary drainage system beneath the Closure Cell. However, any releases would be vented through the drainage system.

G. **VSI Observations**: Pond 4 could not be observed because the Closure Cell currently overlies the area (photographs #42 and #43).

H. **Sample Results**: ETC's 1983 soil and sludge sampling indicated that PCBs and dioxin were present in the sludges. PCBs were found at 0-23 ppm, dioxin at 18 ppb. PCBs were also detected at 14 ppm from the rip rap deposits on the dikes of the open portion of the pond[8,9]. Sludges from Pond 4 also show high levels of metals and VOCs, including 1,2-Dichloroethane [28]. Soil sampling results submitted to OEPA on December 4, 1985 for approval to backfill could not be found [18,19]. Seeps on the east side of the excavated Pond revealed PCB and VOCs present [20]. In addition, Well L-19 south of Pond 4 was shown 1,2-Dichloroethane contamination and Well L-16 north of the pond has shown high TOX values and the presence of organic compounds [2]. Increased concentrations of VOCs in the air were noted during closure of Ponds 4,5, and 7 [33].

I. **Suggested Further Actions**: The discharge from the capillary drainage system to the turnpike ditch should be sampled and analyzed for VOCs, semi-volatiles, pesticides/PCBs, and total metals. This discharge should be under permit. Groundwater assessment monitoring should continue to evaluate migration of contaminants from beneath Pond 4.

5. Unit Type: Pond 5

Regulatory Status: SWMU, Inactive but not closed

A. **Unit Description:** Pond 5 is a 900'L x 165'W x 22.5'D unlined surface impoundment which was used as a settling basin to treat waste oils with waste acids. Oil was skimmed off the top of the pond to be processed at the Oil Recovery Facility. The Boom Skimmer and two Skim Oil Tanks were located between Ponds 4 and 5. Sediments would settle to the bottom of the pond and the acidic aqueous wastes would be pumped to Pond 7. [2,4,9,14,17]

As a result of the widespread PCB contamination discovered at the facility in 1983, approximately 150,000 gallons of >500 ppm PCB oil was skimmed from Pond 5 and incinerated at the CWM facility in Emele, Alabama that same year. Responding to the CAFO in early 1985, aqueous waste acids were pumped to Ponds 11 and 12. Sludges were fixed by mixing with cement kiln dust. 72,434 cubic yards of fixed sludges were transferred to the Waste Pile. By the end of 1985, excavation to natural clays was completed and the dikes were pushed in. The TSCA/RCRA closure cell has since been constructed over the area of Ponds 4, 5, and 7 awaiting transferral of fixed wastes from the Waste Pile. The area of Pond 5 currently underlies the middle third of the Closure Cell (Figure 2). [1,2,4,10,11,12,13,19,21,22,,23,23,25,26,27]

B. **Age:** 22 years
Period of Operation: 1968-December 1985

C. **Waste Type:** Waste oils, caustics, acids, pickle liquors, phenolic wastes, unknowns
Waste Volume/Capacity: 20,700,000 gallons
Waste Constituents: PCBs, D004-D011 metals, VOCs, PAHs, dioxins, unknowns

D. **Release Controls:** Earthen dikes

E. **Release History:** A January 19, 1973 dike wall break allowed an unknown amount of liquid to flow into Pond 4, which flowed into Pond 1, and to the soil adjacent to Pond 1.

F. **Conclusions:**

Soil: Releases to soils underlying Pond 5 have been documented. Residual contamination was detected in soils even after the final excavation of the pond [19]. Seeps appeared at the south end of the pond after the final excavation [32]. Although the Pond 5 seeps were not sampled, data on seeps from Ponds 4 and 7 indicate VOC, phenol, PCB, and possibly metals contamination [20]. Further contaminated material was discovered and removed when the dikes were pushed in [18,19].

Groundwater: There is a high potential for releases to groundwater as evidenced by seeps from beneath the pond and contaminants found in seeps in Ponds 4 and 7, on either side of Pond 5 [20,32]. The pond was unlined and the water table in the lacustrian deposits is above the base of the pond [2]. Monitoring well L-15 north of the pond has indicated high TOX Levels present [2]. Installation of the capillary drainage system beneath the Closure Cell may reduce the migration of contaminants from the SWMU by lowering the hydraulic head [21].

Surface Water: There is a high potential for releases of hazardous constituents to the turnpike drainage ditch north of the Closure Cell. Currently, the capillary drainage system drains groundwater from beneath the Closure Cell directly to the drainage ditch [14]. There is no permit for this discharge [14]. At least 6 inches of clay should lie between the zone of residual contamination and the drainage system [19,21]. It is likely that contaminated groundwater beneath Pond 4 is discharging through the capillary drainage system to the expressway ditch.

Air: Based on calculations and data collected in 1983, Pond 5 has released numerous VOCs and inorganic acids to the air [29,30,33]. Many complaints of air releases from the closure of Ponds 4, 5, and 7 were noted [31]. However, since the Closure Cell was constructed, there is currently a low potential for releases.

Subsurface Gas: There is moderate potential for releases of subsurface gases to the capillary drainage system. However, any releases would be vented through the drainage system.

G. **VSI Observations**: Pond 5 could not observed because the Closure Cell currently overlies the area (photographs #42 and #43).

H. **Sample Results**: Approximately 150,000 gallons of oil removed from the pond in 1983 contained PCBs in excess of 500 [27]. Sediment samples contained up to 223 ppm PCBs [9,27]. Pond 5 sludges also contained high levels of metals and VOCs, especially halogenated compounds [28]. Monitoring well L-15 north of the pond has indicated high TOX levels and the presence of organic compounds [2]. Soil sampling results submitted to OEPA on December 4, 1985 could not be found [18,19]. Increased concentrations of VOCs in the air were noted during closure of Pond 5 [33].

I. **Suggested Further Actions**: The discharge from the capillary drainage system to the turnpike ditch should be sampled and analyzed for VOCs, semi-volatiles, pesticides/PCBs, and total metals. This discharge should be under permit. Groundwater assessment monitoring should continue to evaluate migration of contaminants from beneath Pond 5.

6. Unit Type: Pond 6

Regulatory Status: SWMU, Inactive but not closed.

A. **Unit Description:** Pond 6 is a 400'L x 75'W x 15'D unlined surface impoundment which received mixed acids, acid sludges, phenolic wastes, and other unknown wastes. Pond 6 was divided into east and west ponds by constructing a dike in 1976. In October 1979 sludges from the east side were removed to Pond 4 and this portion of Pond 6 was backfilled with clean fill. In 1981, the liquids from the west site were pumped to either Pond 4 or Pond 5 and most of the sludges clamshelled to Pond 10. Some sludges may have been landfarmed at the North Landfarm. The west side was backfilled with clean fill and Pond 9 sludges which had been fixed with foundry sand, lime, and pickle liquor using the Pug Mill. Pond 6 is currently buried beneath clay and fill, lying just south of the closure cell (Figure 2). [2,4,9,10,11]

B. **Age:** 24 years
Period of Operation: 1966-1981

C. **Waste Type:** Waste acids, acid sludges, pickle liquors, phenolic wastes, Pond 9 sludges, unknowns
Waste Volume/Capacity: Unknown
Waste Constituents: PCBs, D004-D011 Metals, phenols, VOCs, PAHs, pesticides, unknowns

D. **Release Controls:** Earthen dikes

E. **Release History:** On April 24, 1975 unknown amount of phenolic waste was released into Raccoon Creek. It is not known if the Creek was remediated. Also, on July 30, 1978 a release of Diazinon, an insecticide, into Pond 6 due to an unloading hose blowout, generated fumes [4].

F. Conclusions:

Soil: There is a high potential for release of hazardous constituents to the underlying soil. The pond has no liner and hazardous wastes including acids, heavy metals, and phenols have been in direct contact with the underlying clay since 1966. Pond 9 sludges which contained PCBs [8,9] and probably VOCs and PAHs are currently located in the west portion of the pond. Also, it is assumed that the 1975 release of phenolic wastes to Raccoon Creek took an overland route, although this is not documented.

Groundwater: There is a high potential for release to groundwater. The lack of an impermeable liner in the pond indicates that hazardous constituents may have migrated into the water table at the base of the pond. Monitoring well L-20 at the northwest corner of Pond 6 indicated a number of organic compounds present [2].

Surface Water: A release of phenolic wastes to Raccoon Creek in 1975 has been documented. The cause of the release is not known. It is also not known if the Creek was sampled or remediated after the release. Currently the potential for release to surface water is low.

Air: A release to air has been documented when Diazinon reacted with acids and generated fumes in 1978. In addition, continued volatilization of acids and phenols during the active history of the pond is probable. Currently, the potential to release to air is low.

Subsurface Gas: There is a low potential for releases of subsurface gases. Clays surrounding the pond would limit the production and migration of such gases.

G. **VSI Observations**: Pond 6 could not be observed because it has been backfilled and covered with 10-13 feet of fill and clay. A decon trailer and weigh station currently overlie this area (Photographs #37 and #38).

H. **Sample Results**: No PCBs were detected in the pond backfill or clay beneath the pond during ETC's 1983 sampling [8,9].

I. **Suggested Further Actions**: Pond 6 must undergo formal RCRA closure including installation of post-closure monitoring wells. These monitoring wells should be incorporated into the current groundwater assessment monitoring program to evaluate migration of contaminants from SWMU.

7. <u>Unit Type</u>: Pond 7 (includes Pond 8)

Regulatory Status: SWMU, Inactive but not closed

A. **Unit Description:** Pond 7 is a 825'L x 180'W x 23'D unlined surface impoundment which was used as a settling/treatment pond for waste acids and oils. Pond 7 received both raw wastes and liquid wastes pumped from Pond 5. These wastes would then be pumped to Pond 11 by means of transfer pipe and a pumphouse between the two ponds. Pond 7 was originally constructed as two ponds with a dike between them: Pond 7 in the south and Pond 8 in the north half. This configuration was changed in the early 1970s and the entire area is now referred to as Pond 7 [4,9,12] (Figures 2 and 3).

As a result of the widespread PCB contamination discovered at the facility in 1983, approximately 170,000 gallons of oil contaminated with 1000 ppm PCB was removed from Pond 7 for incineration at the CWM facility in Emele, Alabama. In early 1985, aqueous wastes were pumped into Ponds 11 and 12. Sludges were fixed by mixing with cement kiln dust. 46,873 cubic yards of fixed sludges from Pond 7 are currently being stored in the waste pile. Excavation to the natural clay was completed and approved by OEPA on December 23, 1985. The dikes were then pushed in and additional contaminated material removed to the Waste Pile. The TSCA/RCRA Closure Cell has since been constructed over the area of Ponds 4,5, and 7 awaiting transferral of wastes from the Waste Pile. The area of Pond 7 currently lies beneath the western third of the Closure Cell. [2,4,10,11,12,13,19,21,22,23,24,25,26,27]

B. **Age:** 22 years
Period of Operation: 1968-December 1985

C. **Waste Type:** Waste oils, acids, pickle liquors, phenolic wastes, unknowns
Waste Volume/Capacity: 19,200,000 gallons
Waste Constituents: PCBs, D004-D011 metals, VOCs, PAHs, unknowns

D. **Release Controls:** Earthen dikes

E. **Release History:** On February 25, 1979 a displaced transfer line from Pond 7 to Pond 11 discharged up to 96,000 of waste acid to the ground outside the east dike of Pond 11. The waste, which made its way to Meyers Creek, was reportedly pumped out. On August 5, 1989 100 to 1,500 gallons of Pond 7 acid was discharged at the Ponds 7/11 pumphouse. Numerous other 300-500 gallon discharges occurred at the pumphouse in subsequent years. A 1000 gallon release of waste acid to the ground adjacent to Pond 7 was reported on April 15, 1985. An August 23, 1983 air release occurred when mixture of incompatible materials were being unloaded simultaneously producing an unknown amount of chlorine fumes. Also, on September 3, 1984 an unknown amount of NO_3 and NO_2 fumes were generated due to an imbalance of H_2SO_4 and HNO_3. Fumes drifted off site. A September 14, 1984 air release occurred when an uncontrolled reaction released a cloud of NO_x which left the site in a southwesterly direction for approximately 2 miles [4].

F. **Conclusions:**

Soil: Up to 100,000 gallons of waste acid has been released from Pond 7 transfer piping in various incidents [4]. Clays underlying the pond and seeps emanating from the base of the excavated pond have indicated residual contamination present [19,20]. Further contaminated material was discovered and removed when the dikes were pushed in [18,19].

Groundwater: There is a high potential for releases to groundwater as evidenced by the widespread soil releases and contaminants found in the seeps at the south side of the excavated pond [4,20]. The pond was unlined and contained up to 20 feet of liquid waste during its 22 year period of operation. Monitoring wells L-14, L-30, and especially L-20 have suggested possible contamination, including elevated TOX and phenol levels [2]. Installation of the capillary drainage system beneath the closure cell may reduce the migration of contaminants from the SWMU by lowering the hydraulic head.

Surface Water: A release of up to 96,000 gallons of waste acid to Meyers Creek has been documented [4]. Additionally, there is a high potential for releases to the turnpike ditch via the capillary drain system [14]. The turnpike ditch drains to Little Raccoon Creek.

Air: Numerous releases of noxious vapors to air have been documented [4]. Release of VOCs to air increased during closure activities [29,30,31,33]. However, since the Closure Cell was constructed, the potential for current releases to air is low.

Subsurface Gas: There is a moderate potential for releases of subsurface gases to the capillary drainage system. However, any releases would be vented through the drainage system.

G. **VSI Observations:** Pond 7 could not be observed because the Closure Cell currently overlies the area.

H. **Sample Results:** Waste Oil contained in Pond 7 in 1983 contained approximately 1,000 ppm PCBs [27]. Sludges in the pond contained up to 42 ppm PCBs [9]. Seeps at the south end of the excavated pond indicated high phenol concentrations [20[. Monitoring wells L-20 and L-30 to the south and west of Pond 7 have indicated elevated phenol levels [2]. Increased concentrations of VOC in the air were noted during closure of Ponds 4,5, and 7 [33].

I. **Suggested Further Actions:** Meyers Creek sediments should be sampled for semivolatiles, pesticides/PCBs, and total metals. The discharge from the capillary drainage system should be sampled and analyzed for VOCs, semivolatiles, pesticides/PCBs, and total metals. This discharge should be under permit. Groundwater assessment monitoring should continue to evaluate migration of contaminants from beneath Pond 7.

8. <u>Unit Type</u>: Pond 9 and Wet Well

Regulatory Status: SWMU, Inactive but not closed

A. **Unit Description:** Pond 9 is a 440'L x 75'W x 11'D unlined surface impoundment in which a variety of pond sludges and hydroxide slurries were stored. Liquids from Pond 9 were pumped to Pond 4. In 1978, sludges from Pond 9 were mixed with dirt and backfilled to Pond 1. By 1980 the sludges were being fixed with foundry sand, lime, and pickle liquors using the Pug Mill. The fixed sludge was placed in Ponds 6-west and 10, and some in Pond 4. Pond 9 was backfilled with clean stone and soil in June 1981 and currently underlies the Waste Pile (Figure 2). [2,3,9,10,11,12,16]

A 110'L x 90'W appendage to the southwest corner of Pond 9 is known as the Wet Well. The Wet Well was actually the first surface impoundment developed at the facility to store waste oils, acids, and sludges. Given the long operating history of the Wet Well, it is suspected that accumulated sludges were routinely removed to Pond 9 for storage. The Wet Well was drained to Ponds 11 and 12 in 1984, and may have been backfilled during the decommissioning of the Oil Reclamation Facility 1985, although documentation of this has not been found. [9,13,14,16]

B. **Age:** Pond 9: 21 years; Wet Well: 32 years?
Period of Operation: Pond 9: 1969 - June 1981; Wet Well: 1958? - 1985

C. **Waste Type:** Waste oils, pickle liquors, acids, sludges, unknowns
Waste Volume/Capacity: Pond 9: 130,000 cu. ft sludges (in 1975)
Waste Constituents: PCBs, D004-D011 Metals, VOCs, PAHs, unknowns

D. **Release Controls:** Earthen dikes

E. **Release History:** Unknown

F. **<u>Conclusions</u>:**

Soil: There is a high potential for releases to soil underlying Pond 9 and the Wet Well. Both areas were unlined and handled hazardous liquids and sludges. PCBs were found in the backfilled material of Pond 9 and in the clay berms of the Wet Well [8,9]. It is likely that more mobile constituents have migrated through the soils.

Groundwater: There is a high potential for releases to groundwater. Because the surface impoundment was unlined and was filled with liquid wastes over a long period of operation, it is likely that hazardous constituents have migrated to the water table at the base of the impoundment. Monitoring well L-26 near the Wet Well has detected a number of organic compounds present [2].

Surface Water: There is a low potential for release to surface water. The pond's dikes were made of clay. The area was backfilled and currently lies beneath the waste pile.

Air: There was high potential for releases of acids and organics to air before the area was backfilled. Currently, there is a low potential for air releases.

Subsurface Gas: There is low potential for releases of subsurface gas. Clays surrounding the area would limit the production and migration of such gases.

G. **VSI Observations**: Pond 9 and the Wet Well could not be observed because they have been backfilled and subsequently covered by the Waste Pile (photographs #32 and #34).

H. **Sample Results**: PCBs were detected in Pond 9 sludges/backfill at 34 ppm at a depth of 9 feet. PCBs were detected at 75 and 7 ppm in the clay berm of the Wet Well [8,9]. Monitoring well L-26 near the Wet Well has detected various organic compounds [2].

I. **Suggested Further Actions**: Pond 9 and the Wet Well must undergo formal RCRA Closure including installation of post-closure care monitoring wells. These monitoring wells should be incorporated into the current groundwater assessment monitoring program to evaluate migration of contaminants from the SWMU.

9. Unit Type: Pond 10

Regulatory Status: SWMU, Inactive but not closed

A. **Unit Description:** Pond 10 is a 520'L x 150'W x 12'D unlined surface impoundment which received phenolic wastes, sludges and fixed Pond 9 sludge. In 1980, liquid wastes were drained from the pond in preparation for backfilling. The liquids were pumped to either Pond 5 or Pond 7. Pumpable sludges were transferred to Pond 4. Non-pumpable sludges were mixed with cement kiln dust and then moved to the south side of Pond 4. Pond 10 was backfilled with a mixture of fixed sludge from Pond 9 and clean soil, and capped with clay in 1982. The pond is located in the central portion of the facility just south of Pond 6 (Figure 2). [2,4,9,10,11,16]

B. **Age:** 19 years
Period of Operation: 1971-1982

C. **Waste Type:** Aqueous phenolic wastes and sludges
Waste Volume/Capacity: 8,500,000 gallons
Waste Constituents: PCBs, D004-D011 metals, phenols, VOCs, PAHs, dioxins, unknowns

D. **Release Controls:** Earthen dikes

E. **Release History:** Unknown

F. Conclusions:

Soil: There is a high potential for releases to soil underlying Pond 10. The pond was unlined and held liquid phenolic wastes for approximately 20 years. Underlying soils have been analyzed for PCBs only. There is no data on more mobile contaminants such as volatile and semivolatile organic compounds.

Groundwater: There is a high potential for releases to groundwater. Because the surface impoundment was unlined and was filled with liquid wastes over a long period of operation, it is likely that hazardous constituents have migrated to the groundwater from the base of the pond. Monitoring wells near the pond have shown high phenol concentrations.

Surface Water: There is a low potential for a release to surface water. The pond's dikes were made of clay and no releases were reported. The pond was backfilled, covered with clay, and graded.

Air: There is a high potential for a releases of organic compounds to air before the pond was backfilled. Currently, there is a low potential for release.

Subsurface Gas: There is a low potential for releases of subsurface gas. Clays surrounding the pond would limit the production and migration of such gases.

G. **VSI Observations**: Pond 10 could not be observed because it has been backfilled, covered with fill and clay, and graded (photograph #38).

H. **Sample Results**: No PCBs were detected in pond backfill or underlying clays [9]. However, 0.22 ppb TCDD (dioxin) was reported at a depth of 3 feet [8]. No data on semi-volatile analyses were found. Monitoring well L-20 at the southwest corner of Pond 10 has shown high TOX and phenols. L-27 south of the pond indicates elevated phenols. [2]

I. **Suggested Further Actions**: Pond 10 must undergo formal RCRA closure including installation of post-closure care monitoring wells. These monitoring wells should be incorporated into the current groundwater assessment monitoring program to evaluate migration of contaminants from the SWMU.

10. <u>Unit Type</u>: Pond 11

Regulatory Status: SWMU, Inactive but not closed

A. **Unit Description:** Pond 11 is a 900'L x 500'W x 29'D unlined surface impoundment which was used as a settling pond for oily and acidic wastes pumped from Pond 7. The acidic aqueous fraction was then pumped from Pond 7. The acidic aqueous fraction was then pumped from Pond 11 to Pond 12 before deep well injection. During closure of Ponds 4, 5, and 7 in early 1985, liquid wastes from these ponds were pumped to Pond 11. Pond 11 also received liquid wastes from the Wet Well in 1984 (Figure 2). [2,4,10,13]

Pond 11 lost its Interim Status in 1985 when CWM failed to include Ponds 11 and 12 in their Part B application. Later revisions of the Part B indicate, however, that CWM intended to retain Interim Status for these units. Currently, precipitation which collects in the pond is pumped to FAT-A and deep well injected. Pond 11 is to be closed when, and if, U.S. EPA approves disposal of sludges and excavated materials in the TSCA/RCRA Closure Cell.

B. **Age:** 19 years
Period of Operation: 1971-present

C. **Waste Type:** Oily wastes, waste acids, pickle liquors, caustics, phenols, unknowns.
Waste Volume/Capacity: Approximately 80,000,000 gallons
Waste Constituents: PCBs, D004-D011 Metals, VOCs, PAHs, phenols, unknowns

D. **Release Controls:** Earthen dikes

E. **Release History:** On June 27, 1985 approximately 1,500 gallons of Pond 11 waste was discharged into a surface drainage ditch on the east side of the pond.

F. <u>**Conclusions:**</u>

Soil: Releases to soils from transfer pipes from Pond 11 have been documented. It is also highly likely that the soils underlying the pond are contaminated.

Groundwater: There is a high potential for releases to groundwater. Because the surface impoundment was unlined and filled with liquid wastes over a long period of operation, it is likely that hazardous constituents have migrated to the water table at the base of the impoundment.

Surface Water: There is a low potential for releases to surface water. The pond's dikes were made of clay.

Air: Releases of VOCs and acids to air have been documented.

Subsurface Gas: There is low potential for releases of subsurface gases due to the clay soil underlying the pond.

G. **VSI Observations**: Pond 11 is empty with the exception of a few feet of black liquid (waste/rainwater mixture) which is intermittently pumped to FAT A. Approximately 1 foot of black sludge is on the bottom and sides. Pump raft lies on bottom of the pond. Strong acid odors noted at the top of the dike (photographs #46, #47, and #48).

H. **Sample Results**: Black oily sludges of the rip rap of Pond 11 contained 576 ppm PCBs [9].

I. **Suggested Further Actions**: Monitoring wells L-20, L-21, L-22, L-28, L-34, and L-35 should be sampled for VOCs, semi-volatiles, and total metals. Meyers Creek sediment should be sampled for semivolatiles, pesticides/PCBs, and total metals. Proceed with closure of the pond and post-closure monitoring, if required, as soon as possible.

11. **Unit Type**: Pond 12

Regulatory Status: SWMU, Inactive but not closed

A. **Unit Description:** Pond 12 is an 860'L x 600'W x 34'D unlined surface impoundment which was used as a settling pond for acidic aqueous wastes pumped from Pond 11. The waste liquid was then pumped from Pond 12 through filters and ultimately deep well injected. During closure of Ponds 4, 5, and 7 in early 1985, aqueous wastes were pumped to Pond 12 (Figure 2).

Pond 12 lost its Interim Status when CWM failed to include Ponds 11 and 12 in their Part B application. In later revisions to their permit CWM indicated that they intended to retain Interim Status for the unit. However, despite this, CWM continued to pump RCRA hazardous wastes into Pond 12 from the Leachate Retention Basin and Pond 11 until November 1988 when the minimum technical requirements for surface impoundments took effect. Currently, precipitation which collects in the pond and mixes with the acidic wastes is pumped to FAT-A for ultimate deep well injection. Pond 12 is to be closed when, and if, U.S. EPA approves disposal of sludges and excavated materials from the pond in the TSCA/RCRA Closure Cell.

B. **Age:** 19 years
Period of Operation: 1971-present

C. **Waste Type:** Aqueous wastes, acidic wastes, phenolic wastes, unknowns
Waste Volume/Capacity: Approximately 110,000,000 gallons
Waste Constituents: D004-D011 Metals, VOCs, phenols, unknowns

D. **Release Controls:** Earthen dikes

E. **Release History:** A January 24, 1984 incident involving a 4,000 gallon release of Pond 12 acid between Pond 12 dike and bordering access road. Also on March 5, 1988, approximately 12,000 gallons of dilute sulfuric acid was released to the on-site portion of Meyers Ditch.

F. **Conclusions:**

Soil: Numerous releases to soils from transfer pipes from Pond 12 have been documented. In addition it is likely that soils beneath the pond have been contaminated.

Groundwater: There is a high potential for releases to groundwater. Because the surface impoundment is unlined and was filled with liquid wastes over a long period of operation, it is likely that hazardous constituents have migrated to the water table at the base of the impoundment.

Surface Water: A release of acidic wastes from Pond 12 to Meyer's Creek has been documented.

Air: Releases of VOCs and acids to the air have been documented.

Subsurface Gas: There is low potential for releases of subsurface gas due to the clay soil underlying the pond.

G. **VSI Observations**: Pond 12 had minor amounts (a few feet) of rainwater/waste at bottom. CWM said the pH of the liquid is probably 3-4. Some staining was noticed on the rip rap but there was no evidence of overtopping. Strong acid odors were noted at the top of the dike (photographs #44, #45, and #68).

H. **Sample Results**: Monitoring well L-33 south of the pond has indicated elevated levels of chromium present.

I. **Suggested Further Actions**: Monitoring wells L-22, L-29, L-31, L-32, and L-33 should be sampled for VOCs, semi-volatiles, and total metals. Proceed with closure of the pond and post-closure monitoring, if required, as soon as possible.

12. <u>Unit Type</u>: North Landfarm

Regulatory Status: SWMU, Inactive but not closed

A. **Unit Description:** The North Landfarm area is approximately 800'L x 375'W. This area was used to farm the sludges from Pond 9. In 1979, a small amount of sludge which was buried in trenches dug along north end of Pond 11 and 12, was dug up and also landfarmed. Also Pond 6 sludge may have been landfarmed in this area. In the summer of 1984, much of the area was removed and placed in the temporary stockpile as part of the OEPA-approved surface water management plan. The abandoned landfarm is located in the northwest portion of the facility north of Pond 12 and west of the truck unloading facility (Figure 3). [4,8]

B. **Age:** 16 years
Period of Operation: 1974-1984

C. **Waste Type:** Oily sludges, plating sludges, metal hydroxide sludges
Waste Volume/Capacity: Unknown/unknown
Waste Constituents: PCBs, D004-D011 metals, VOCs, PAHs, phenols, unknowns

D. **Release Controls:** Unknown

E. **Release History:** A March 6, 1984 report by ETC Corporation stated PCBs were detected at 7 ppm in one sample. [8]

F. <u>Conclusions</u>:

Soil: Releases of PCBs to soil have been documented. However, contaminated soil was reportedly removed in 1984.

Groundwater: There is a low potential for releases to groundwater.

Surface Water: There was a high potential for releases to Meyers Creek. Flooding of the area was frequent. Currently the potential is low. The area has been remediated and regraded.

Air: There is a low potential for releases to air. The area has been remediated.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gases. Soils in this area are rich in clay and would be expected to inhibit the generation and migration of subsurface gases.

G. **VSI Observations**: Approximately 2-3 feet of soil has been removed to the Waste Pile. However, a mound of soil at the base of a telephone pole still remains. Uneven grass growth was noted (photograph #51).

H. **Sample Results**: PCBs were detected at 7 ppm in one soil sample in 1983 [8].

I. **Suggested Further Actions**: Soil by the telephone pole and beneath in vegetated areas should be sampled for semi-volatiles, pesticides/PCBs, and total metals.

13. <u>Unit Type</u>: East Landfarm

Regulatory Status: SWMU, Inactive but not closed

A. **Unit Description:** The East Landfarm area was used to farm sludges from Pond 9 in 1975 through 1976. Under the direction of the Ohio EPA, the East Landfarm area of the oil reclamation facility was excavated of contamination in August of 1984. In September, 1984, the area was backfilled with clean soil (Figure 3). [4,8]

B. **Age:** 15 years
Period of Operation: 1975 - 1984

C. **Waste Type:** Oily sludges, plating sludges, metal hydroxide sludges
Waste Volume/Capacity: Unknown/unknown
Waste Constituents: VOCs, PAHs, phenols, D004-D011 metals

D. **Release Controls:** Unknown

E. **Release History:** Nine soil samples taken by ETC Corporation showed all PCB levels to be less than 5 ppm. [8]

F. **<u>Conclusions</u>:**

Soil: Before remediation there was a high potential for release to soil. Currently, there is a low potential for release of hazardous constituents to soils. Contaminated soil has been removed.

Groundwater: Currently, there is a low potential for releases to groundwater. The area has been remediated.

Surface Water: There was a high potential for releases to Little Raccoon Creek due to frequent flooding of the area. Since the excavation of contaminated material there is a low potential for release.

Air: There is a low potential for releases to air. Contaminated soil has been removed.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gases. Soils in this area are rich in clay and would be expected to inhibit the generation and migration of subsurface gases.

G. **VSI Observations:** The East Landfarm lies in a swampy area. The area was vegetated with grass with an inch or two of standing water present.

H. **Sample Results:** Soil samples taken in 1983 indicated no PCBs present above 5 ppm. [8]

I. **Suggested Further Actions:** No further action is required.

Were PCBs all that was sampled for?
Metals?

14. Unit Type: South Landfarm

Regulatory Status: SWMU, Inactive but not closed

A. **Unit Description:** The South Landfarm was around the area where injection well #3 is located. Pond 9 sludges were landfarmed in this area in 1975 and 1976 (Figure 3). [4, 8]

B. **Age:** 15 years
Period of Operation: 1975 - 1984

C. **Waste Type:** Oily sludges, plating sludges
Waste Volume/Capacity: Unknown/unknown
Waste Constituents: VOCs, PAHs, phenols

D. **Release Controls:** Unknown

E. **Release History:** Three soil samples taken by ETC corporation showed all PCB levels to be less than 5 ppm. [8] Metals?

F. Conclusions:

Soil: Before remediation there was a high potential for release to soil. Currently, there is a low potential for releases of hazardous constituents to soils. Contaminated soil has been removed.

Groundwater: There is a low potential for releases to groundwater. Prior to remediation there was a high potential for release to Meyers Creek due to frequent flooding.

Surface Water: Currently, there is a low potential for releases to Meyer's Creek. Contaminated soil has been removed and the area regraded and vegetated.

Air: There is a low potential for releases to air. The area has been remediated.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gases. The area has been remediated.

G. **VSI Observations**: Area is flat and covered with grass (photograph #56).

H. **Sample Results**: No PCBs detected in soil samples. [8]

I. **Suggested Further Actions**: No further action required.

15. <u>Unit Type</u>: Oil Reclamation Facility

Regulatory Status: SWMU, Inactive but not closed

A. **Unit Description:** The Oil Reclamation facility was composed of six 420,000 oil storage tanks in a diked sump area, four 15,000 gallon tanks, two reactors, one oil separator, a concrete oil pit, and all support structures. In early 1983, it was determined that PCBs were illegally being handled at the facility. Much of the Oil Reclamation facility was found to be contaminated. A decommission plan was submitted in 1985. All PCB-contaminated oils were shipped off site for disposal. Contaminated soils, piping, tanks, and debris were removed to the Waste Pile. The remediation was completed in early 1986. The facility is located in the southeast corner of the facility just south of Pond 9 (Figures 2,3 and 5). Certified.

B. **Age:** At least 19 years
Period of Operation: Pre-1971 - 1985

C. **Waste Type:** Oily wastes, contaminated oils, oil/water emulsions, unknowns
Waste Volume/Capacity: Unknown
Waste Constituents: Cyanide, PCBs, PAHs, D004-D011 metals, VOCs, unknowns

D. **Release Controls:** Dikes, unknown

E. **Release History:** On December 9, 1980, the cyanide reactor exploded due to incorrect addition of chromic acid to hydrogen peroxide/cyanide, resulting in the release of 5,000 gallons of waste to the air. Also a 05/19/83 overflow of Reactor #2 of PCB-contaminated oil. Approximately 400 gallons where spilled. Releases to voluminous to list.

F. **<u>Conclusions</u>:**

Soil: Releases of PCB and VOCs to soils at the Oil Reclamation Facility have been documented. The gross contamination has been removed to the Waste Pile. Minor residual VOC contamination remains beneath the fill over the area [35].

Groundwater: There is a low potential for a release to groundwater. The area has been remediated.

Surface Water: There was a moderate potential for release to Little Raccoon Creek due to potential flooding of the area. Currently, there is a low potential for release.

Air: An inadvertent combination of cyanide wastes with acid wastes in the cyanide reactor released up to 5,000 gallons of hazardous wastes to the air.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gases. The area has been remediated.

G. **VSI Observations**: Corrosion was noted at the northeast corner of the Boiler House where pipes used to lead to the Rear Pump House (Photograph #64). Corrosion may be due to acid spills. Oil Recovery Facility in low graded flat with grass cover. Shallow ponded water was noted at the northeast corner. A drainage ditch flows north across the southeast corner to Little Raccoon Creek (photographs #35 and #36).

H. **Sample Results**: Soil samples collected after the excavation of contaminated materials indicate low levels of VOCs still present in the soil [35].

What levels?

I. **Suggested Further Actions**: No further action is required.

16. <u>Unit Type</u>: Waste Pile

Regulatory Status: SWMU, Active

A. **Unit Description:** The Waste Pile was created from the closure of Ponds 4, 5, 7 and the Oil Reclamation Facility and is located in the northeast portion of the facility. It is superimposed over the area previously occupied by Ponds 1, 2, 3, 9. The Waste Pile received fixed pond sludges as part of the Phase I closure program. The pile also received contaminated scrap metal and debris from the decommissioned Oil Reclamation Facility (Figure 4).

B. **Age:** 5 years
Period of Operation: 1985 - present

C. **Waste Type:** Fixed pond sludges, Oil Reclamation Facility tanks, structures, and soils
Waste Volume/Capacity: 425,000 yd^3
Waste Constituents: PCBs, D004-D011 Metals, VOCs, PAHs, phenols, unknowns

D. **Release Controls:** Plastic cover is held down by tires to reduce air emissions. Perimeter drainage ditch to direct run off and leachate to retention basin.

E. **Release History:** On April 9, 1987 numerous leachate seeps were observed emanating from the base of the waste pile. The leachate seeps were observed flowing into a perimeter ditch that directs flow into a retention basin. Plastic cover has blown off of the Waste Pile numerous times.

F. <u>Conclusions</u>:

Soil: There is moderate potential for releases to fill underlying the Waste Pile. However, the fill beneath the Waste Pile is composed of pond sludges from Ponds 1,2,3, and 9 and probably contains various wastes.

Groundwater: There is a moderate potential for releases to groundwater.

Surface Water: There is a moderate potential for releases to Little Raccoon Creek especially during periods of heavy rainfall due to lack of adequate runoff controls.

Air: There is a moderate potential for releases to air. The waste pile is often not completely covered.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gases. Soils in this area are rich in clay and may inhibit the generation and migration of subsurface gas.

G. **VSI Observations**: Plastic cover left parts of the Waste Pile exposed to air and precipitation (photograph #34). Ponding of leachate was noted in several areas due to inadequate slope and grading of parameter drainage ditch (photographs #33 and #41). In addition, runoff control was non-continuous especially at the southwest corner of the waste pile (photograph #34).

H. **Sample Results**: No sample results are available.

I. **Suggested Further Actions**: Ultimate disposal of waste pile materials should proceed as quickly as possible.

17. Unit Type: Leachate Retention Pond

Regulatory Status: SWMU, Active

A. **Unit Description:** The retention pond is located to the east of the waste pile and was constructed by CWM pursuant to Section XV (28)(A)(4) of the Ohio Consent Decree of May 22, 1984 to collect runoff. The basin started collecting leachate and therefore became a solid waste management unit (Figure 4).

B. **Age:** 5
Period of Operation: 1985 - present

C. **Waste Type:** Leachate, surface runoff from Waste Pile
Waste Volume/Capacity: Unknown
Waste Constituents: PCBs, D004-D011 Metals, VOCs, PAHs, phenols, unknowns

D. **Release Controls:** At least 2 feet of freeboard is maintained by pumping leachate to FAT-A. Gate G-1 is now permanently closed.

E. **Release History:** A March 3 and 4, 1986 incident in which a surface water management gate G-1 was opened, releasing approximately 75,000 gallons of waste from the Leachate Retention Pond to the Turnpike Ditch which flows to Little Raccoon Creek.

F. Conclusions:

Soil: There is a high potential for release of contaminants to soils underlying the surface impoundment.

Groundwater: There is a high potential for releases to groundwater.

Surface Water: A major release of 54,000 to 75,000 gallons to the turnpike ditch has been documented.

Air: There is a high potential for releases to air. The Leachate Retention Pond is open to the air.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gases. Soils in this area are clay rich and would be expected to inhibit the generation and migration of subsurface gases.

G. **VSI Observations:** Approximately 4-5 feet of freeboard was observed with no evidence of overtopping of the banks. Liquid is pumped to FAT-A by means of a small pump double-cased transfer pipe. Freeboard is usually checked daily.

H. **Sample Results:** No sample results are available.

I. **Suggested Further Actions**: Close Waste Pile and Retention Pond as soon as possible. Little Raccoon Creek sediments should be sampled for semivolatiles, pesticides/PCBs, and total metals. Install monitoring wells L-17, L-18, and L-25 and sample for VOCs, semi-volatiles, pesticides/PCBs, and total metals.

18. Unit Type: Old Tank Farm

Regulatory Status: SWMU, Inactive, awaiting closure

A. **Unit Description:** The Old Tank Farm was comprised of 4 tanks (W-3, W-4, W-5, W-7). These tanks received wastes for storage prior to treatment. Each tank was re-constructed in 1972 and were set on a sand bed foundation. The tanks were drained and sludges removed as the New Tank Farm was implaced. Each tank showed signs of "oil canning" or buckling of bottoms, possibly due to washout of sand foundation. The Old Tank Farm is located in the north central portion of the facility, just west of Pond 7 and north of Pond 11 (Figures 2 and 3).

B. **Age:** W-3, W-4, W-5: 27 years; W-7: 14 years
Period of Operation: 1963-1989; 1976-1989

C. **Waste Type:** Aqueous wastes, oily wastes, odorous wastes, phenolic wastes, unknowns
Waste Volume/Capacity: W-3 300,000 gallons; W-4 340,000 gallons; W-5 340,000 gallons; W-7 320,000 gallons
Waste Constituents: PCBs, VOCs, phenols, D004-D011 metals, unknowns

D. **Release Controls:** W-7 and W-3 have a sensing devise attached to pressure release valve

E. **Release History:** A March 7, 1984 incident in which organic wastewater leak discharge approximately 50 gallons from a defective discharge valve on Tank W-7. On November 1, 1984 "nitrogen" gas was released into the air due to a malfunction in the pressure-release system. Numerous small leaks and releases have occurred. Soil analyses recorded PCB and heavy metal contamination below the tank area.

F. Conclusions:

Soil: Releases to soil have been documented. CWM is currently excavating contaminated soil so that they can clean-close the W-Tanks.

Groundwater: There is a moderate potential for releases to groundwater. Tanks were set on a sand bed foundation.

Surface Water: There is a low potential for releases to surface water.

Air: A release of nitrogen gas which may have contained hazardous constituents was documented at W-7.

Subsurface Gas: There is a low potential for releases of subsurface gases.

G. **VSI Observations**: Tanks W-3, W-4, and W-7 were demolished and soil beneath them excavated. W-5 was in the process of removal. Some rust staining was noted in the remaining soils. Excavated areas were filled with shallow water approximately 1 foot deep (photographs #49 and #50).

H. **Sample Results**: PCBs and elevated metals concentrations were found in soils beneath the W-Tanks.

I. **Suggested Further Actions**: CWM will try to clean-close tanks based on approval of soil data submitted to OEPA. No further action is required.

19. Unit Type: Old Drum Storage Pad

Regulatory Status: SWMU

A. **Unit Description:** The Old Drum Storage pad was located in the area of Pond 6-W, according to a 1981 map. The pad was approximately 330'L x 75'W (Figure 3).

B. **Age:** Approximately 9 years
Period of Operation: 1981 - 1983(?)

C. **Waste Type:** Unknown, probably phenolic and organic wastes
Waste Volume/Capacity: Unknown
Waste Constituents: Unknown, probably phenols, VOCs, and PAHs

D. **Release Controls:** Unknown

E. **Release History:** Unknown

F. Conclusions:

Soil: The potential for release cannot be evaluated due to lack of data.

Groundwater: The potential for release cannot be evaluated due to lack of data.

Surface Water: The potential for release cannot be evaluated due to lack of data.

Air: The potential for release cannot be evaluated due to lack of data.

Subsurface Gas: The potential for release cannot be evaluated due to lack of data.

G. **VSI Observations:** Drum Storage Pad could not be observed because it no longer exists. No evidence of releases was noted at the pad's former location (photograph #37).

H. **Sample Results:** None available.

I. **Suggested Further Actions:** No further action is required.

20. <u>Unit Type</u>: Lab Waste Tank

Regulatory Status: SWMU, Active

A. **Unit Description:** The Lab Waste Tank is a 2,000 gallon polyurethane underground storage tank which receives Lab Wastes and unused portions of samples taken from tanker trucks. F-solvent wastes are not discarded to the tank. The tank is pumped out for deep well injection about once every 2-2.5 weeks. A previous steel tank leaked and was replaced by the polyurethane tank (Figure 3).

B. **Age:** Unknown
Period of Operation: Unknown

C. **Waste Type:** Unused tanker samples, lab waste - everything except F-solvents
Waste Volume/Capacity: 2,000 gallons
Waste Constituents: PCBs, VOCs, PAHs, phenols, D004-D011 metals, unknowns

D. **Release Controls:** level indicator with alarm

E. **Release History:** The previous underground storage tank that was used for Lab Waste developed a leak and was removed. Approximately 2 feet of contaminated soil was removed and disposed of off site.

F. **<u>Conclusions</u>:**

Soil: The previous steel tank has released contaminants to the soil. The contaminated soil was removed from the excavation.

Groundwater: There is a low potential for releases to groundwater due to the underlying clay.

Surface Water: There is a low potential for release to surface water.

Air: There is a low potential for release to air.

Subsurface Gas: There is a low potential for release of subsurface gas.

G. **VSI Observations:** Lab Waste Tank is underground with standpipe for venting. No evidence of releases were observed (photograph #1).

H. **Sample Results:** None

I. **Suggested Further Actions:** No further action is necessary.

Testing [illegible]

yes

21. <u>Unit Type</u>: Truck Unloading and Washing Facility

Regulatory Status: SWMU, Active

A. **Unit Description:** The unit is a 60'W x 124'L x 24'H steel framed, insulated building set on top of concrete piers in a 4' high concrete block wall. The facility is designed for receipt of wastes from tank trucks prior to treatment. The concrete floors are sloped to 18 inch deep waste unloading sumps. Each sump lined with corrosion-resistant liner. Each sump leads to one of four Grit Filters which sit in pre-cast cement chambers. These pass liquid wastes onto the pretreatment V-tanks. The truck facility is located in the northwest portion of the facility, just north of Pond 11 (Figure 4).

B. **Age:** 6 years
Period of Operation: 1984-current

C. **Waste Type:** Waste pickle liquor, acids, brines
Waste Volume/Capacity: 480,000 gallons per day
Waste Constituents: Hydrochloric, sulfuric, nitric, hydrofluoric, and chromic acids, D004-D011 metals.

D. **Release Controls:** Each sump contains spill resistant liners. Also the concrete floor is sloped both longitudinally and transversely. The sumps are in a 2' wide x 2' deep concrete chambers.

E. **Release History:** No releases reported

F. **<u>Conclusions</u>:**

Soil: There is a low potential for release to soil. The facility is underlain by concrete.

Groundwater: There is a low potential for releases to groundwater. Spills and waste water are directed to unloading sumps.

Surface Water: There is a low potential for releases to surface water. Spillage is directed to unloading sumps.

Air: There is a low potential for releases to air. The truck unloading and washing facility is enclosed.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. Spillage falls on a concrete surface and is directed to unloading sumps.

G. **VSI Observations**: The Truck Unloading Area appeared to be well-maintained and clean. The interior was completely bermed and drainage sumps led to Grit Filters (photograph #4). The Washing Facility was also well-maintained (photograph #7).

H. **Sample Results**: None.

I. **Suggested Further Actions**: No further action is required.

22. <u>Unit Type</u>: Grit Filters (aka Gravity Filters, Sand Interceptors)

Regulatory Status: SWMU, Active

A. **Unit Description:** Unloading pipes from truck unloading bays lead to four Grit Filters. The Grit Filters are each 3'9" W x 7'L of 1/4" steel plates. They have fiberglass grating over most of the top which the incoming flow drops out the gross solids. The Grit Filters are set below grade in precast concrete chambers, two per chamber. The chambers are each 11'6"L x 10'W x 6'D. The top of the chambers are 6" above ground and supplied with a fiberglass cover. Each chamber is vented to the scrubber. The Grit Filters are located in the northwest portion of the facility just east of truck unloading facility (Figure 4).

B. **Age:** 6 years
Period of Operation: 1984-present

C. **Waste Type:** Waste pickle liquors, acids, brines, neutral waters
Waste Volume/Capacity: 480,000 gallons per day
Waste Constituents: Hydrochloric, sulfuric, nitric, hydrofluoric, and chromic acids, D004-D011 metals

D. **Release Controls:** The concrete chambers serve as secondary containment which are 11'6"L x 10'W x 6"D. Each chamber is covered and gasketed. Also, each chamber is vented to the scrubber.

E. **Release History:** On May 24, 1989 a heel of nitric acid which remained in Grit Filter 3 and Tank V-6 reacted with sulfuric acid/pickle liquor unloaded through the same line. The reaction generated NOx gases which overloaded the scrubber. To prevent a reoccurence, HF/HNO_3 acids will now be unloaded only through Grit Filter 2 and Tank V-7.

F. **<u>Conclusions</u>:**

Soil: There is a low potential for release to soil. Wastes are contained within steel and concrete chambers.

Groundwater: There is a low potential for release to groundwater. Wastes are contained within steel and concrete chambers.

Surface Water: There is a low potential for release to surface water. The Grit Filters are completely enclosed.

Air: There is a low potential for release to air. The air in the Grit Filters is vented to the scrubber.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. Wastes are contained within steel and concrete chambers.

G. **VSI Observations:** The Grit Filters are four tanks lying in two below grade concrete vaults. A large duct vents gases to the Scrubber. No evidence of releases was observed (photograph #5).

H. **Sample Results:** None.

I. **Suggested Further Actions:** No further action required.

23. <u>Unit Type</u>: Waste Receiving Tanks (V-Tanks)

Regulatory Status: SWMU, Active

A. **Unit Description:** This unit consists of four 5,920 gallon working volume tanks number V-4 through V-7. They are set below grade in 30' x 42' reinforced concrete vault. The vault is approximately 13 feet deep with 6 inches protruding above ground level. The vault is open topped, yet sheltered by a wood structure. Wastes are received from the respective grit filters and unloading sump. Discharge lines follow the above ground pipe racks to the various storage/treatment tanks. All tanks are vented to the scrubber. The V-tank vault is located just east of the truck unloading facility (Figure 4).

B. **Age:** 6 years
Period of Operation: November 1, 1984-present

C. **Waste Type:** Waste pickle liquors, neutral waters, acidic wastes
Waste Volume/Capacity: 5,920 gallons each
Waste Constituents: Hydrochloric, sulfuric, nitric, hydrofluoric, chromic acids, D004-D011 metals

D. **Release Controls:** The vault is divided in half by a 5' 10" high concrete wall on its east-west axis. The two halves of the vault floor slope to sumps in the northeast and southeast corners. Pumps sit nearby.

E. **Release History:** On February 21, 1989 approximately 50 gallons of pickle liquor was release to the ground from a transfer line from Tank V-6 to Tank T-1 [37]. Also, one June 7, 1989 NOx gases were released when pickle liquor mixed with nitric acid in a common transfer line between the V-Tank and the T-Tanks [36].

F. <u>Conclusions</u>:

Soil: There is a low potential for release to soil from the tanks. The tanks are in a concrete vault.

Groundwater: There is a low potential for release to groundwater. The tanks are located in a concrete vault.

Surface Water: There is a low potential for release to surface water. The tanks are in an underground concrete vault.

Air: There is a low potential for release to air. The headspace gases are vented to the scrubber.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. The tanks are located in a concrete vault.

G. **VSI Observations**: Four V-Tanks are located below grade in concrete vaults inside building. No evidence of releases was observed (photograph #6).

H. **Sample Results**: None.

I. **Suggested Further Actions**: No further action is required.

24. <u>Unit Type</u>: Waste Head-Gas Scrubber

Regulatory Status: SWMU, Active

A. **Unit Description:** The scrubber is a 9' high, 16" diameter vertical exhaust stack. The unit and auxiliary equipment are set on a 27' x 32' by 16" thick reinforced concrete slab with a 1' wide by 2' high curb around the edge. Gas to be scrubbed is drawn into bottom of scrubber column, travels upward drawn by one of the two fans. The gas rising in the scrubber column is cleaned by an aqueous caustic spray injected near top. Contaminated scrubber liquid flows by gravity from the bottom of the column to a large horizontal holding tank. Sixteen inch diameter scrubber lines intercept lines from various SWMUs. The scrubber is located just north of the new tank farm (Figure 4).

B. **Age:** 8
Period of Operation: 1983 - present

C. **Waste Type:** Gases vented from wastes in Grit Filters and Tanks
Waste Volume/Capacity: Variable; 3,600 ACFM
Waste Constituents: Acids, VOCs

D. **Release Controls:** Aqueous caustic spray inlets

E. **Release History:** On March 10, 1988, significant increases in chloride concentrations were observed which soon returned to normal. Also, a May 24, 1989 nitrous oxide release due to incompatible mixture of ferrous iron and nitric acid. Also, a June 7, 1989 air release occurred due to the same cause.

F. **<u>Conclusions</u>:**

Soil: There is a low potential for release to soil. Waste is gaseous.

Groundwater: There is a low potential for release to groundwater. Waste is gaseous.

Surface Water: There is a low potential for release to surface water. Waste is gaseous.

Air: Releases to air have been documented. However, flow of noncompatible wastes have been changed to prevent further releases.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. Gaseous waste is managed above ground.

G. **VSI Observations:** No releases were observed (photograph #8).

H. **Sample Results:** None

I. **Suggested Further Actions:** No further action is required.

25. Unit Type: New Tank Farm

Regulatory Status: SWMU, Active

A. **Unit Description:** The New Tank Farm consists of 6-storage tanks (4 x 200,000 gallons; 2 x 100,000 gallons). These tanks sit on a 20-inch reinforced concrete foundation. The foundation is 143' x 140'. All piping is supported above ground, within containment area. The tanks are enclosed by a secondary containment structure which is 140' x 12' by 3.5' thick. All systems comply with 40 CFR 264. Each tank is vented through the packed tower scrubbers. The New Tank Farm is located just north of Pond 11 (Figure 4).

is it?

B. **Age:** 1
Period of Operation: 1989 - present

C. **Waste Type:** Aqueous acidic wastes, F-solvents
Waste Volume/Capacity: Unknown,/4 x 200,000 gallons; 2 x 100,000 gallons 1000K gallons
Waste Constituents: Waste pickle liquors, sulfuric, hydrochloric, nitric, hydrofluoric acids, D004-D011 metals, VOCs.

5880 ft²

D. **Release Controls:** 140' x 12' x 3.5' thick concrete secondary containment structure. Each tank is on a raised pad which are grooved radially, which conducts any released liquids to two collection sumps located in the NW and SE corners of the pad.

4.399%

E. **Release History:** No known releases.

F. Conclusions:

Soil: There is a low potential for release to soil. Tanks are underlain by a bermed concrete secondary containment.

Groundwater: There is a low potential for release to groundwater. Tanks are underlain by a bermed concrete secondary containment.

Surface Water: There is a low potential for release to surface water. 3.5 foot high berms would contain any spilled waste.

Air: There is a low potential for release to air. Tank head gas is vented to the scrubber.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. Tanks are underlain by a concrete bermed secondary containment. Tank head gas is vented to the scrubber.

G. **VSI Observations:** Six large vertical tanks were observed within secondary containment. Sumps in NW and SW corners are pumped out to deep well injection system when necessary (photograph #14).

H. **Sample Results:** None.

I. **Suggested Further Actions:** No further action is required.

Sumps lined?

26. <u>Unit Type</u>: T-Tank Pump House

Regulatory Status:

A. **Unit Description:** The T-Tank Pump House lies west of the New Tank Farm. It houses numerous pumps which move wastes between tanks, through filters, and eventually to the numbered FAT Tanks for deep well injection (Figure 4).

B. **Age:** 1
Period of Operation: 1989 - present

C. **Waste Type:** Aqueous acidic wastes, F-solvents
Waste Volume/Capacity: Unknown
Waste Constituents: Acids, D004-D011 metals, VOCs

D. **Release Controls:** All pumps are housed within a building on a bermed concrete pad.

E. **Release History:** No releases known.

F. <u>Conclusions</u>:

Soil: There is a low potential for release to soil. Pumps are on a bermed concrete pad.

Groundwater: There is a low potential for release to groundwater. Pumps are on a bermed concrete pad.

Surface Water: There is a low potential for release to surface water. The concrete pad is bermed.

Air: There is a low potential for release to air. Pumps are housed within a building.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas.

G. **VSI Observations**: Building is insulated with a bermed concrete pad. No evidence of releases were observed (photograph #18).

H. **Sample Results**: None.

I. **Suggested Further Actions**: No further action is required.

27. Unit Type: Filter Building No. 1

Regulatory Status: SWMU, Active

A. **Unit Description:** Filter Building No. 1 is a one-story steel framed building set on a reinforced concrete slab on-grade that presently houses two pressure leaf filters. The building contains a concrete curb around inside wall, designed to contain spills or leaks. The floor is sloped to run liquid to sump in floor. In the event of an accumulation, a pump is used to pump liquid into FAT-A. The pressure leaf filters are horizontal vessels constructed of carbon steel. The liquid filter is pumped through one of a series of pumps located in the southeast corner of the building. The southeast corner contains the admix and precoat tanks used for mixing and applying the diatemaceous earth which is the filter medium. Filter Building No. 1 is located in the northwest portion of the facility, just north of Pond 11 (Figure 4).

B. **Age:** 15 years
Period of Operation: 1975 - present

C. **Waste Type:** Aqueous acidic waste
Waste Volume/Capacity: 36 cubic feet each
Waste Constituents: Waste acids, D004-D011 metals, VOCs

D. **Release Controls:** Concrete curb has been installed around inside of building after 1985. Also 8 foot high PUC-sheet provides spill protection of walls. Various check valves. Filter Building No. 1 is located in the northwest portion of the facility, just north of Road 11.

E. **Release History:** A 10/19/85 incident when overflow of the pre-coat tank resulted in a release of 50 gallons of acid waste onto floor which escaped through holes in the floor. Also many 10 to 30 gallons spills have been recorded.

F. **Conclusions:**

Soil: There was a moderate potential for release to soil before drains were plugged and the concrete pad bermed. Currently there is a low potential for release.

Groundwater: There is a low potential for release to groundwater. The filter Building No. 1 has a bermed concrete floor.

Surface Water: There is a low potential for release to surface water. Spills and leaks are contained in a bermed concrete pad which slopes to a sump.

Air: There is a low potential for release to air. The filter building is completely enclosed.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. The concrete pad is bermed and contained spills and leaks are directed to a sump which pumps to FAT-A when full.

G. **VSI Observations:** Concrete floor was bermed around the entire perimeter. Although there have been occasional spills inside the bermed area, the liquid has been cleaned up and deep well injected (photographs #16 and #17).

H. **Sample Results:** None.

I. **Suggested Further Actions:** No further action is required.

28. <u>Unit Type</u>: Sluice Pit

Regulatory Status: SWMU, Inactive but not closed

A. **Unit Description:** The Sluice Pit was used as a holding tank for waste liquids during back flushing of the Leaf Filters. The pit is a concrete box 10' x 10' located in a building between Filter Buildings 1 and 2 (Figure 3).

B. **Age:** 15 years
Period of Operation: 1975-1986

C. **Waste Type:** Acidic waste back flush
Waste Volume/Capacity: 15,000 gallons/week
Waste Constituents: Acids, D004-D011 metals, unknowns

D. **Release Controls:** The Sluice Pit is a concrete pit located within a small shed with a steel berm.

E. **Release History:** Unknown.

F. <u>Conclusions:</u>

Soil: There is a high potential for release to soil. Steel berm shows evidence of corrosion. Soil staining observed outside of the berm.

Groundwater: There is a moderate potential for release to groundwater if the concrete pit has cracked with age.

Surface Water: There is a low potential for release to surface water. The sluice pit is surrounded by a steel berm.

Air: There is a low potential for release to air.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. Acid wastes are not volatile.

G. **VSI Observations**: Significant staining was noted on the concrete floor and outside the steel berm in the front of the building. The pit is beneath the cover on the left (photograph #15).

H. **Sample Results**: None.

I. **Suggested Further Actions**: Sample soils outside of steel berm for semi-volatiles, pesticides/PCBs, and total metals. This unit should be closed as it is no longer in use.

29. <u>Unit Type</u>: Filter Building No. 2

Regulatory Status: SWMU, Active

A. **Unit Description:** Filter Building No. 2 contains a large, recessed plate filter press and four polishing filters. Prior to 1989, the building was pump house 1 serving injection wells 1 and 1-A. The building is a steel framed building resting on a reinforced concrete slab. The concrete slab has a perimeter containment curb. The feed pumps and control panels for the filter press are also located in this building. These pumps draw from FAT-A which is fed from tanks or impoundments. The plate filter press is a 70 cubic feet filter unit. Waste is fed into the center and exits through a drain pipe and back to the T-Tanks. Filter Building No. 2 is located in the northwest portion of the facility, just north of Pond 11 (Figure 3).

B. **Age:** 15 years
Period of Operation: 1975 - Present

C. **Waste Type:** Acidic wastes
Waste Volume/Capacity: 70 cubic feet
Waste Constituents: Acids, D004-D011 metals, VOCs

D. **Release Controls:** Building contains perimeter containment curb and all equipment is corrosion resistant.

E. **Release History:** Liquid waste occasionally spilled on the floor used to drain to underground pipes which drained to the Sluice Pit. These pipes were found to be extensively corroded when the floor was replaced. Contaminated soils were reportedly excavated.

F. <u>Conclusions</u>:

Soil: There is a low potential for release to soil. A bermed concrete pad underlies the building.

Groundwater: There is a low potential for release to groundwater. The building is underlain by a bermed concrete pad.

Surface Water: There is a low potential for release to surface water. The concrete pad is bermed.

Air: There is a low potential for release to air. Waste is within a closed piping system.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas.

G. **VSI Observations**: Concrete floor was continuously bermed with some staining apparent. Any spilled liquid is now pumped out of collection sump for deep well injection (photographs #12 and #13).

H. **Sample Results**: None.

I. **Suggested Further Actions**: No further action required.

30. <u>Unit Type</u>: Filtered Acid Tanks: FAT-A, FAT-B, FAT-C (aka FAT-1, FAT-6)

Regulatory Status: SWMU, Active

A. **Unit Description:** FAT-A and FAT-B are fiberglass reinforced plastic vertical cylindrical tanks, which temporarily holds treated acids. The FAT tanks are located in the northwest portion of the facility, just south of Filter Building 1. FAT-A holds acidic wastes prior to filtration. FAT-B held the filtered wastes prior to distribution to outlying FATs and injection wells. FAT-C (aka FAT-1, FAT-6) has stored filtered acidic wastes in the past but currently is used for storage of non-hazardous brine (Figure 3).

B. **Age:** 15 years
Period of Operation: 1975-present

C. **Waste Type:** Acidic wastes
Waste Volume/Capacity: 18,313 gallons, FAT-A and FAT-B; 10,575 gallons, FAT-C
Waste Constituents: Acids, D004-D011 metals

D. **Release Controls:** The three FAT tanks lie in a reinforced concrete secondary containment system. This containment consists of a 3.5 foot high perimeter wall set on a concrete slab joined and/or sealed to the tanks.

E. **Release History:** On March 13, 1989, 50 gallons of acidic wastes were spilled on the ground outside the southwest corner of FAT-A's concrete containment [37]. How?

F. <u>Conclusions</u>:

Soil: A release to soil has been documented at the southwest corner of the containment. Currently there is a low potential for release.

Groundwater: There is a low potential for release to groundwater. The FAT tanks lie in a reinforced concrete secondary containment system.

Surface Water: There is a low potential for release to surface water. The concrete secondary containment would prevent any spilled material from leaving the area.

Air: There is a low potential for release to air. The FAT tanks are completely enclosed.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. Acidic wastes are not volatile.

G. **VSI Observations:** 1-2 inches of standing water was observed in the secondary containment. There was no staining or evidence of releases (photographs #19 and #20).

H. **Sample Results:** None.

I. **Suggested Further Actions**: It is unlikely that soil sampling at the location of the 50 gallon spill will indicate contamination present. No further action is necessary.

31. Unit Type: Filtered Acid Tank FAT-3

Regulatory Status: SWMU, Active

A. **Unit Description:** FAT-3 is a fiberglass, reinforced plastic vertical cylindrical tank. FAT-3 temporarily stores filtered acid prior to deep well injection. Acidic wastes in FAT-3 are distributed to Well 2, FAT-1, and FAT-5. FAT-3 is located in the far northwest portion of the facility just south of FAT-1 (Figure 3).

B. **Age:** Approximately 13 years
Period of Operation: Mid-late 1970s - present

C. **Waste Type:** Filtered Acids
Waste Volume/Capacity: 20,804 gallons
Waste Constituents: Acids, D004-D011 metals, phenols, VOCs, unknowns.

D. **Release Controls:** FAT-3 has a reinforced concrete secondary containment system, 1984. This containment consists of a 3.5 foot high perimeter wall set on a concrete slab joined and/or sealed to the tanks.

E. **Release History:** On July 26, 1984 prior to the construction of the containment wall approximately 2,000 gallons of acids were released due to a failure of PVC elbow on tank. CWM stated the liquids were pumped up and ultimately deep well injected.

F. **Conclusions:**

Soil: A 2,000 gallon release to soil has been documented. Currently there is a low potential for release. FAT 3 is inside a reinforced concrete secondary containment.

Groundwater: There is a low potential for release to groundwater. FAT 3 rests on a concrete slab and is surrounded by a perimeter wall.

Surface Water: The 1984 release may have released waste acid to Meyer's Creek. Currently there is a low potential for release. The reinforced concrete secondary containment would contain any releases.

Air: There is a low potential for release to air. Acidic waste is completely enclosed in the plastic tanks.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. Acidic wastes are not volatile.

G. **VSI Observations:** FAT-3 lies within 3.5 foot secondary containment built in 1984. Prior to that there was no secondary containment. A double-walled tank resting nearby will replace the current tank soon. No evidence of releases observed (photograph #21).

H. **Sample Results:** None.

I. **Suggested Further Actions**: Due to the nature of the waste acids, it is unlikely that sampling of the spill area would reveal contamination. No further action necessary.

32. <u>Unit Type</u>: Pump House 3

Regulatory Status: SWMU, Active

A. **Unit Description:** Pump House 3 is an enclosed building with a bermed concrete pad. The pump house contains two 5 micron polish filters, a satellite drum storage for used filters, and a piston pump to pump wastes down Injection Well 2 (Figure 3).

B. **Age:** 13 years
Period of Operation: 1977 - present

C. **Waste Type:** Acidic wastes
Waste Volume/Capacity: Variable
Waste Constituents: Acids, D004-D011 metals, phenols, VOCs, unknowns

D. **Release Controls:** The pump house has a bermed concrete floor. High pressure transfer line to Well 2 has outer containment sleeve with detection pots.

E. **Release History:** On December 2 (unknown year), 400 gallons of filtered waste acid was released due to a pump failure. The waste flowed out of the building and onto the adjacent ground. The liquid was pumped up for deepwell injection and the visibly contaminated soil was removed. On April 18 (unknown year) 500 gallons of filtered waste acid was released to the ground from the Pump House 3/Well 2 transfer line. Lime was applied to the ground. On February 27, 1985 2,000 - 3,000 gallons of waste acid was released to the ground from the same transfer pipe. The liquid was pumped to Pond 11 and lime applied to the ground.

F. <u>**Conclusions:**</u>

Soil: Large releases to the soil has been documented especially from the transfer line to Injection Well 2. Currently there is a low potential for release due to outer containment sleeve with detection pots.

Groundwater: There is a low potential for release to groundwater. Pump House 3 has a bermed concrete pad. An outer containment sleeve with detection pots surrounds high pressure transfer line to Well 2.

Surface Water: Releases to Meyers Creek may have occurred during large spills. Currently there is a low potential for release. Pump House 3 has a bermed concrete pad.

Air: There is a low potential for release to air. Pump House 3 is a completely enclosed building.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. Any spills would be contained by the bermed concrete floor or outer containment sleeve surrounding high pressure transfer line to Well 2.

G. **VSI Observations:** Pump house appeared to be well-maintained with no evidence of releases observed (photographs #21 and #65).

H. **Sample Results:** None.

I. **Suggested Further Actions:** Soil sampling would probably not indicate contamination present due to nature of the waste. No further action is required.

33. <u>Unit Type</u>: Filtered Acid Tank, FAT-1 (aka FAT-6)

Regulatory Status: SWMU, Active

A. **Unit Description:** FAT-1 is a fiberglass, reinforced plastic vertical cylindrical tank which receives and stores filtered acids prior to deepwell injection in Well 6 (aka Well 1). The FAT-1 tank is located in the far northwest portion of the facility next to Pump House 1 (Figure 3).

B. **Age:** 9 years
Period of Operation: 1981 - present

C. **Waste Type:** Filtered Acids
Waste Volume/Capacity: 13,736 gallons
Waste Constituents: Acids, D004-D011 metals, phenols, VOCs, unknowns

D. **Release Controls:** FAT-1 has a reinforced concrete secondary containment system built in 1985. This containment consists of a 3.5 foot high perimeter wall set on a concrete slab joined and/or sealed to the tanks.

E. **Release History:** No known releases.

F. <u>Conclusions</u>:

Soil: There is a low potential for release to soil due to concrete secondary containment.

Groundwater: There is a low potential for release to groundwater. FAT-1 rests on a bermed concrete floor.

Surface Water: There is a low potential for release to surface water. FAT-1 rests on a bermed concrete floor.

Air: There is a low potential for release to air. FAT-1 is a completely enclosed tank.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. Spills are contained inside a bermed concrete floor space.

G. **VSI Observations:** FAT-1 lies with concrete containment with no evidence of releases observed (photograph #22).

H. **Sample Results:** None.

I. **Suggested Further Actions:** No further action is required.

34. Unit Type: Pump House 1 (aka Pump House 6)

Regulatory Status: SWMU, Active

A. **Unit Description:** Pump House 1 is an enclosed building with a bermed concrete pad. The pump house contains one 5 micron polish filter and one centrifugal pump to pump waste acid down the adjacent Injection Well 6, aka Injection Well 1 (Figure 3).

B. **Age:** 9 years
Period of Operation: 1981 - present

C. **Waste Type:** Waste acids
Waste Volume/Capacity:
Waste Constituents: Acids, D004-D011 metals, phenols, VOCs, unknowns

D. **Release Controls:** The pump house has a bermed concrete floor. The high pressure transfer line to Well 6 has an outer containment sleeve with detection pots.

E. **Release History:** No known releases.

F. Conclusions:

Soil: There is a low potential for release to soil due to the bermed concrete pad.

Groundwater: There is a low potential for release to groundwater. The pump house has a bermed concrete pad.

Surface Water: There is a low potential for release to surface water. Spills would be contained in the bermed concrete floor area.

Air: There is a low potential for release to air. Pump House 1 is completely enclosed.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. Any spills would be contained in the Pump House's secondary containment.

G. **VSI Observations:** Pump House 1 was bermed with no visible evidence of releases (photographs #22 and #23).

H. **Sample Results:** None.

I. **Suggested Further Actions:** No further action is required.

35. <u>Unit Type</u>: Filtered Acid Tank, FAT-5

Regulatory Status: SWMU, Active

A. **Unit Description:** FAT-5 is a fiberglass, reinforced plastic vertical cylindrical tank. FAT-5 receives filtered acid wastes prior to deepwell injection at Well 5. The unit is located on the western portion of the facility south of Borrow Pit 2 (Figure 6).

B. **Age:** 9 years
Period of Operation: 1981 - present

C. **Waste Type:** Filtered Acids
Waste Volume/Capacity: 10,575 gallons
Waste Constituents: Acids, D004-D011 Metals, phenols, VOCs, unknowns

D. **Release Controls:** FAT-5 has a reinforced concrete secondary containment system built in 1985. This containment consists of a 3.5 foot high perimeter wall set on a concrete slab joined and/or sealed to the tanks.

E. **Release History:** No known releases.

F. **<u>Conclusions</u>:**

Soil: There is a low potential for release to soil due to the secondary containment and level alarm.

Groundwater: There is a low potential for release to groundwater. FAT-5 is surrounded by a secondary containment consisting of a concrete floor and perimeter wall.

Surface Water: There is a low potential for release to surface water. Spills would be contained inside the bermed area.

Air: There is a low potential for release to air. FAT-5 is completely enclosed.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas.

G. **VSI Observations:** Rust staining observed inside secondary containment at same level as level alarm. Liquid was reportedly pumped out for deepwell injection. No evidence of migration outside of secondary containment (photograph #24).

what liquid?

H. **Sample Results:** None.

I. **Suggested Further Actions:** No further action is required.

36. Unit Type: Pump House 5

Regulatory Status: SWMU, Active

A. **Unit Description:** Pump House 5 is an enclosed building with a bermed concrete pad. The pump house contains two 5 micron polish filters and one piston pump to pump waste down adjacent Well 5 (Figure 6).

B. **Age:** 9 years
Period of Operation: 1981 - Present

C. **Waste Type:** Acidic wastes
Waste Volume/Capacity:
Waste Constituents: Acids, D004-D011 Metals, phenols, VOCs, unknowns

D. **Release Controls:** The pump house has a bermed concrete floor. The high pressure transfer pipe to Well 5 has an outer containment sleeve with detection pots.

E. **Release History:** No known releases.

F. Conclusions:

Soil: There is a low potential for release to soil due to the bermed concrete pad.

Groundwater: There is a low potential for release to groundwater due to the bermed concrete pad.

Surface Water: There is a low potential for release to surface water. Spills would be contained inside the bermed concrete floor area.

Air: There is a low potential for release to air. Pump House 5 is completely enclosed.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. Pump House 5 is surrounded by a concrete berm.

G. **VSI Observations:** Bermed pump house has some minor staining on the floor inside, but no evidence of releases outside of containment (photographs #24 and #25).

H. **Sample Results:** None.

I. **Suggested Further Actions:** No further action is required.

37. <u>Unit Type</u>: Filtered Acid Tank, FAT-2

Regulatory Status: SWMU, Inactive (Tank to be replaced)

A. **Unit Description:** FAT-2 is a fiberglass, reinforced plastic vertical cylindrical tank which receives filtered acid before its disposal by means of deepwell injection. FAT-2 is located in the south east portion of the Facility, adjacent to Pumphouse 4 (aka Pumphouse 2). FAT-2 was recently moved to its present location from its old location at Pump House 2 (Figure 4).

B. **Age:** 4 years
Period of Operation: 1986 - 1990

C. **Waste Type:** Filtered Acids
Waste Volume/Capacity: 13,736 gallons
Waste Constituents: Acids, D004-D011 metals, phenols, VOCs, unknowns

D. **Release Controls:** FAT-2 has a reinforced concrete secondary containment system built in 1986. This containment consists of a 3.5 foot high perimeter wall set on a concrete slab joined and/or sealed to the tanks. The inside of the concrete containment is coated with fiberglass resin.

E. **Release History:** No known releases.

F. <u>Conclusions</u>:

Soil: There is a low potential for release to soil due to the concrete secondary containment.

Groundwater: There is a low potential for release to groundwater due to the concrete secondary containment.

Surface Water: There is a low potential for release to surface water. Any spills would be contained inside the bermed concrete floor area.

Air: There is a low potential for release to air. FAT-2 is a completely enclosed tank.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. FAT-2 is underlain by a concrete floor and is surrounded by concrete berms.

G. **VSI Observations:** No evidence of releases was observed (photograph #29).

H. **Sample Results:** None.

I. **Suggested Further Actions:** No further action is required.

38. Unit Type: Pump House 4 (aka Pump House 2)

Regulatory Status: SWMU, Active

A. **Unit Description:** Pump House 4 is an enclosed building with a bermed concrete pad. The pump house contains a 5 micron polish filter and one piston pump to pump wastes down Injection Well 4. Since there is no operating FAT for this pump house, wastes are injected at low pressure (Figure 4).

B. **Age:** 4 years
Period of Operation: 1986 - present

C. **Waste Type:** Waste Acids
Waste Volume/Capacity:
Waste Constituents: Acids, D004-D011 metals, phenols, VOCs, unknowns

D. **Release Controls:** The pump house has a bermed concrete floor.

E. **Release History:** No known releases.

F. Conclusions:

Soil: There is a low potential for release to soil due to the bermed concrete pad.

Groundwater: There is a low potential for release to groundwater due to the bermed concrete pad.

Surface Water: There is a low potential for release to surface water. Pump House 4 is underlain by a bermed concrete floor.

Air: There is a low potential for release to air. Pump House 4 is completely enclosed.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. The Pump House has a concrete floor.

G. **VSI Observations:** No evidence of releases observed.

H. **Sample Results:** None.

I. **Suggested Further Actions:** No further action is required.

39. <u>Unit Type</u>: Old FAT-2 Containment

Regulatory Status: SWMU, Inactive but not closed

A. **Unit Description:** Secondary containment for FAT-2, which has been moved to Pump House 4, still exists next to Pump House 2 (Figure 3).

B. **Age:** 13 years
Period of Operation: 1977-1987

C. **Waste Type:** Waste Acids
Waste Volume/Capacity:
Waste Constituents: Acids, D004-D011 metals, phenols, VOCs, unknowns

D. **Release Controls:** A 3.5-foot high reinforced concrete wall is set on a concrete slab.

E. **Release History:** No known releases.

F. <u>**Conclusions:**</u>

Soil: There is a low potential for release to soil. No releases have been reported.

Groundwater: There is a low potential for release to groundwater. The containment consists of a concrete pad and reinforced concrete wall.

Surface Water: There is a low potential for release to surface water. Spills are contained inside the bermed area.

Air: There is a low potential for release to air.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas.

G. **VSI Observations:** 1-2 inches of liquid (probably rainwater) was observed in the secondary containment (photograph #40). ?

H. **Sample Results:** None.

I. **Suggested Further Actions:** No further action is required.

Sample or Closure ?

40. Unit Type: Pump House 2

Regulatory Status: SWMU, Inactive but not closed

A. **Unit Description:** Pump House 2 is an enclosed building with a bermed concrete pad (Figure 3).

B. **Age:** 13 years
Period of Operation: 1977-1987

C. **Waste Type:** Waste Acids
Waste Volume/Capacity:
Waste Constituents: Acids, D004-D011 metals, phenols, VOCs, unknowns

D. **Release Controls:** Pump House 2 sits on a bermed concrete pad.

E. **Release History:** No known releases.

F. **Conclusions:**

Soil: There is a low potential for release to soil due to the bermed concrete pad.

Groundwater: There is a low potential for release to groundwater. Pump House 2 sits on a bermed concrete pad.

Surface Water: There is a low potential for release to surface water. The bermed concrete pad would contain any spills.

Air: There is a low potential for release to air. Pump House 2 is completely enclosed.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. Spills are contained in a bermed area.

G. **VSI Observations:** No evidence of releases was observed (photograph #40).

H. **Sample Results:** None.

I. **Suggested Further Actions:** No further action is required.

41. <u>Unit Type</u>: Drum Storage Pad (90-day)

Regulatory Status: SWMU, Active

A. **Unit Description:** The Drum Storage Pad is a bermed cement pad north of the truck unloading facility. The pad measures approximately 28' x 50' and is used as a 90-day storage area for hazardous wastes being shipped off site (Figure 4).

B. **Age:** 1989
Period of Operation: 1989 - present

C. **Waste Type:** Filters and filtered materials, solids
Waste Volume/Capacity: 28' x 50' concrete pad
Waste Constituents: D004-D011 Metals, acids, phenols, VOCs

D. **Release Controls:** The Drum Storage Pad is a bermed concrete pad with a sump which is pumped out when necessary.

E. **Release History:** No known releases.

F. <u>Conclusions</u>:

Soil: There is a low potential for release to soil. The bermed concrete pad appears adequate to contain minor spillage.

Groundwater: There is a low potential for release to groundwater. Spillage would be contained inside the bermed area.

Surface Water: There is a low potential for release to surface water. Minor spillage is directed to a sump.

Air: There is a low potential for release to air. Waste is enclosed in drums.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. The storage pad is constructed of concrete and is bermed.

G. **VSI Observations:** No evidence of releases was noted at the storage pad (photograph #9). However, several large roll-off boxes were observed just south of the pad. Also, drums were being stored at the NW corner of the same parking lot (see Area of Concern ~~A~~ B).

H. **Sample Results:** None.

I. **Suggested Further Actions:** No further action is required.

42. <u>Unit Type</u>: Waste Lube Oil Tank

Regulatory Status: SWMU, Active

A. **Unit Description:** The Waste Lube Oil Tank receives waste lube oil from the facility's maintenance building. The 1,000 gallon above ground tank is located at the north portion of the facility, west of the maintenance building, and is surrounded by a gravel berm (Figure 4).

B. **Age:** 5
Period of Operation: 1985 - Present

C. **Waste Type:** Waste lube oil
Waste Volume/Capacity: Unknown/1,000 gallons
Waste Constituents: Petroleum constituents

D. **Release Controls:** A 1-foot high gravel berm has been constructed around the tank.
Permeability

E. **Release History:** No known releases.

F. <u>Conclusions</u>:

Soil: There is a moderate potential for small spills to the ground during filling and pumping of the tank. Only gravel underlies the tank.

Groundwater: There is a low potential for release to groundwater. Any spillage would be associated with filling and pumping activities and would likely be small.

Surface Water: There is a low potential for release to surface water. The area is bermed with gravel.

Air: There is a low potential for release to air. The Waste Lube Oil Tank is completely enclosed.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. Spillage to the ground would likely be small and would be associated with filling and pumping activities at the tank.

G. **VSI Observations:** No evidence of releases was observed (photograph #52).

H. **Sample Results:** None.

I. **Suggested Further Actions:** No further action is required.

43. <u>Unit Type</u>: Sanitary Wastewater Treatment Plant

Regulatory Status: SWMU, Active

A. **Unit Description:** The Sanitary Wastewater Treatment Plant treats sanitary wastes pumped out of the cesspits at the Maintenance Building and the Truck Unloading Facility. The treatment plant is a small unit consisting of seven underground concrete vaults: two hold raw waste, one is for waste transfer, three are for aeration, and one is for chlorination. Treated water is deep well injected and sludges are shipped off site (Figure 4).

B. **Age:** At least 6 years
Period of Operation: Pre 1984-present

C. **Waste Type:** Sanitary Wastewater
Waste Volume/Capacity: Unknown
Waste Constituents: Sanitary Wastes

D. **Release Controls:** In ground concrete vaults without secondary containment.

E. **Release History:** No known releases.

F. <u>**Conclusions**</u>:

Soil: There is a low potential for release to soil. The treatment plant is not very old and appears well maintained.

Groundwater: There is a low potential for release to groundwater. The treatment plant is not very old and appears well maintained. In addition, the sanitary wastes are processed in concrete vaults.

Surface Water: There is a low potential for release to surface water. Sanitary wastes are contained in covered. Sanitary wastes are contained in concrete vaults.

Air: There is a low potential for release to air. Sanitary wastes are contained in covered vaults.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. Sanitary wastes are contained in concrete vaults.

G. **VSI Observations:** No evidence of releases was observed. Tanker truck off loads raw wastes pumped from cesspits and returns treated wastes to unloading facility for deep well injection (photograph #39).

H. **Sample Results:** None.

I. **Suggested Further Actions:** No further action is necessary.

Tanker Mixes W/ Hazardous waste or is it dedicated?

44. <u>Unit Type</u>: Truck Unloading Facility Cesspit

Regulatory Status:

A. **Unit Description:** The Truck Unloading Facility Cesspit is an underground storage tank used to hold sanitary wastewater for treatment at the wastewater treatment plant. It is located on the south side of the Truck Unloading Facility (Figure 4).

B. **Age:** 6 years
Period of Operation: 1984-present

C. **Waste Type:** Sanitary wastewater
Waste Volume/Capacity: 1,800 gallons
Waste Constituents: Sanitary wastes

D. **Release Controls:** Underground tank without secondary containment.

E. **Release History:** No known releases.

F. <u>Conclusions:</u>

Soil: There is a low potential for release to soil. The tank is not very old.

Groundwater: There is a low potential for release to groundwater. The tank is not very old and is unlikely to have developed leaks.

Surface Water: There is a low potential for release to surface water. The Truck Unloading Facility Cesspit is an underground storage tank.

Air: There is a low potential for release to air. Wastes are completely enclosed in an underground storage tank.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. The tank is not very old and is unlikely to have developed leaks.

G. **VSI Observations**: No evidence of releases was observed (photograph #57)

H. **Sample Results**: None.

I. **Suggested Further Actions**: No further action is required.

45. <u>Unit Type</u>: Maintenance Building Cesspit

Regulatory Status: SWMU, Active

A. **Unit Description:** The Maintenance Building Cesspit is an underground storage tank used to hold sanitary wastewater for treatment of the wastewater treatment plant. It is located on the south side of the Maintenance Building (Figure 4).

B. **Age:** At least 6 years
Period of Operation: Pre-1984-present

C. **Waste Type:** Sanitary wastewater
Waste Volume/Capacity: 3,000 gallons
Waste Constituents: Sanitary wastes

D. **Release Controls:** Underground tanks without secondary containment.

E. **Release History:** No known releases.

F. <u>Conclusions</u>:

Soil: There is a low potential for release to soil. The tank is not very old.

Groundwater: There is a low potential for release to groundwater. The tank is not very old and is unlikely to have developed leaks.

Surface Water: There is a low potential for release to surface water. The Maintenance Building Cesspit is an underground storage tank.

Air: There is a low potential for release to air. Waste are completely enclosed in an underground storage tank.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. The tank is not very old and is unlikely to have developed leaks.

G. **VSI Observations**: No evidence of releases was observed (photograph #58).

H. **Sample Results**: None.

I. **Suggested Further Actions**: No further action is required.

6.0 AREAS OF CONCERN

This section provides information on five areas of concern identified during the PR/VSI. Conclusions on the potential for releases to soil, groundwater, surface water, and air, and also the potential for subsurface gas generation are given for each area of concern. Recommendation for further actions at each area of concern are also provided.

A. **Unit Type:** Maintenance Tanks

Regulatory Status: Areas of Concern

A. **Unit Description:** Approximately two dozen Maintenance Tanks are found along the above ground acid waste transfer pipes at the facility. The 500 to 1,000 gallon polyethylene tanks are in some places housed in concrete vaults. The tanks are used when transfer pipes need to be drained for repairs. Only a few have ever been used, but CWM does not have records on which ones.

B. **Age:** Approximately 5 years
Period of Operation: Mid/Late 1980s - present

C. **Waste Type:** Filtered acid
Waste Volume/Capacity: 500 to 1,000 gallons
Waste Constituents: Acids, D004-D011 metals, VOCs, phenols

D. **Release Controls:** Some tanks are in concrete vaults, others are not.

E. **Release History:** Unknown.

F. **Conclusions:**

Soil: There is a low potential for release to soil. However, a secondary containment vault should be constructed around those tanks which do not have them.

Groundwater: There is a low potential for release to groundwater. The tanks are not used on a regular basis. The tanks are not very old and are unlikely to have developed leaks.

Surface Water: There is a low potential for release to surface water. The tanks are not used on a regular basis.

Air: There is a low potential for release to air. The tank contents are completely enclosed.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. The tanks are used on a temporary basis. Additionally, they are not very old and are unlikely to have developed leaks.

G. **VSI Observations:** None of the tanks observed were full or exhibited any evidence of leakage (photographs #3 and #10).

H. **Sample Results:** None.

I. **Suggested Further Actions:** Concrete vaults should be constructed around all tanks which currently do not have them.

(Keep records complete and contain.
P. [illegible]

B. <u>Unit Type</u>: North Parking Lot - Truck Unloading Facility

Regulatory Status: Area of Concern

A. **Unit Description:** During the VSI seven (7) rolloff boxes were observed on the soil south of the Drum Storage Pad (90-day). In addition approximately 100 small drums were found on the pavement at the northwest corner of the parking lot. W-Tank demolition debris was being temporarily accumulated in these areas (Figure 4).

B. **Age:** 1 month
Period of Operation: April 5, 1990 - May 1990

C. **Waste Type:** W-3, W-4, W-5, W-7 Tanks demolition debris/soil
Waste Volume/Capacity: 7 rolloff boxes/approximately 100 small drums
Waste Constituents: PCBs, phenols, VOCs, acids, D004-D011 metals.

D. **Release Controls:** None under rolloff boxes, unbermed pavement under drums.

E. **Release History:** Unknown.

F. <u>Conclusions</u>:

Soil: There is a low potential for release to soil. Wastes are containerized soils stored for a short time. No evidence of releases were observed.

Groundwater: There is a low potential for release to soil. Wastes are containerized soils and are stored here for short duration.

Surface Water: There is a low potential for release to surface water. Wastes are containerized and are stored here for short duration.

Air: There is a low potential for release to air. Wastes are containerized.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. Waste is solid material in the form of demolition debris and soils and is containerized.

G. **VSI Observations:** Rolloff boxes on east side of parking lot were resting off the pavement on soil. There was no grass underlying boxes (photographs #54 and #55). Drums at the northwest corner were on pavement (photograph #53). There was no evidence of spills or staining.

H. **Sample Results:** None.

I. **Suggested Further Actions:** No further action is required.

(Cite on improper waste storage).

C. <u>Unit Type</u>: Hay Mill Staging Area

Regulatory Status: Area of Concern

A. **Unit Description:** The Hay Mill area consists of concrete foundations to a farm house and silos in the northwest corner of the facility, west of Injection Well 5. Decontaminated sludge-fixing equipment, including the Pug Mill, is stored here in anticipation of closing Ponds 11 and 12 (Figure 6).

B. **Age:** Approximately 5 years
Period of Operation: Early to mid-1980s-present

C. **Waste Type:** Equipment storage
Waste Volume/Capacity: Approximately 2 acres
Waste Constituents: Unknown

D. **Release Controls:** Concrete pads (silo foundations).

E. **Release History:** No known releases.

F. <u>Conclusions:</u>

Soil: There is a low potential for release to soil. Equipment has reportedly been decontaminated.

Groundwater: There is a low potential for release to groundwater. Reportedly decontaminated equipment rests in a concrete foundation.

Surface Water: There is a low potential for release to surface water. Equipment has reportedly been decontaminated.

Air: There is a low potential for release to air. Equipment has reportedly been decontaminated.

Subsurface Gas: There is a low potential for release of subsurface gas. Sludge-fixing equipment has reportedly been decontaminated.

G. **VSI Observations:** No evidence of releases was observed. One of the hoppers had "PCB" etched on its side (photographs #26 and #27). The Pug Mill is located on the west side of the area (photograph #59).

H. **Sample Results:** None.

I. **Suggested Further Actions:** No further action is required.

D. Unit Type: Borrow Pit 1

Regulatory Status: Area of Concern

A. **Unit Description:** Borrow Pit 1 is a 120' wide and 700' long depression located west of Pond 12. It was created in 1973 when clay was excavated to construct dikes for Ponds 11 and 12. Additional clay was removed in 1984 and 1985 to repair dikes. The Borrow Pit is currently filled with water. Overflow drains directly to Meyers Creek to the west. Demolition debris (concrete and metal) is present at the north end of the Borrow Pit (Figure 4).

B. **Age:** 17 years
Period of Operation: 1973 - 1985

C. **Waste Type:** Demolition debris, unknown.
Waste Volume/Capacity: Unknown.
Waste Constituents: Unknown.

D. **Release Controls:** None.

E. **Release History:** No known releases.

F. Conclusions:

Soil: There is a moderate potential for releases to soil. Filtered acid pumped to Injection Well 2, acidic waste from Pond 12, and potential PCBs from demolition debris may have been released at the north end of the Borrow Pit.

Groundwater: There is a low potential for release to groundwater. Barrow Pit 1 was excavated into clay which would inhibit the migration of contaminants.

Surface Water: There is a moderate potential for release to Meyers Creek. Any contaminants released to the Borrow Pit may have overflowed to Meyers Creek.

Air: There is a low potential for release to air. Concrete and metal debris is currently the only waste stored in Borrow Pit 1.

Subsurface Gas: There is low potential for the generation and migration of subsurface gas. Borrow Pit 1 is dug into natural clay which would inhibit the generation and migration of subsurface gas.

G. **VSI Observations:** Demolition debris and rubble was observed at the north end of the Borrow Pit. Aerial photographs indicate that the debris was placed there after May 1985. CWM personnel did not know where the rubble came from. No stressed vegetation was observed. CWM personnel indicated that to their knowledge, no hazardous wastes were disposed of in the Borrow Pits (photograph #28).

H. **Sample Results:** None.

I. **Suggested Further Actions**: Sample surficial soil beneath the debris pile for PCBs and Total Metals. Sample sediment at north side of Borrow Pit for PCBs and Total Metals. Sample Meyers Creek sediment for PCBs and Total Metals.

E. <u>Unit Type</u>: Borrow Pit 2

Regulatory Status: Area of Concern

A. **Unit Description:** Borrow Pit 2 is approximately 600' wide and 600' long and is located in the northwest portion of the facility. The borrow pit was used to supply clay and fill material for the closure of Ponds, 4, 5, and 7 in 1985. Borrow Pit 2 is still used to supply clay and fill for the facility when needed (Figures 1 and 4).

B. **Age:** 6 years
Period of Operation: 1984 - present

C. **Waste Type:** Unknown.
Waste Volume/Capacity: Unknown.
Waste Constituents: Unknown.

D. **Release Controls:** None.

E. **Release History:** No known releases.

F. <u>Conclusions:</u>

Soil: There is a low potential for release to soil. No evidence of releases observed.

Groundwater: There is a low potential for release to groundwater. Borrow Pit 2 is excavated into clay which would inhibit the migration of contaminants.

Surface Water: There is a low potential for release to surface water. Borrow Pit 2 may overflow during heavy and extended rain events.

Air: There is a low potential for release to air. Borrow Pit 2 is currently filled with water.

Subsurface Gas: There is a low potential for the generation and migration of subsurface gas. Borrow Pit 2 is dug into natural clays which would inhibit the generation and migration of subsurface gas.

G. **VSI Observations:** Borrow Pit 2 is a large pit which is currently filled with water. No stressed vegetation or debris in the pit was noted. CWM personnel indicated that to their knowledge, no hazardous wastes were disposed of in the borrow pits (photographs #60, #61, and #62).

H. **Sample Results:** None.

I. **Suggested Further Actions:** No further action is required.

7.0 SUMMARY OF SUGGESTIONS FOR FURTHER ACTION

The following is a summary of suggested further actions for SWMUs and Area of Concern located at the Chemical Waste Management, Inc. Facility in Vickery, Ohio.

Unit Number/ Letter	Unit Name	Suggested Further Actions
1	Pond 1	If monitoring well L-19 is determined to be defective it should be replaced. Continue groundwater assessment monitoring to evaluate migration of contaminants from Pond 1.
2	Pond 2	Continue groundwater assessment monitoring to evaluate migration of contaminants from SWMU.
3	Pond 3	Continue groundwater assessment monitoring to evaluate migration of contaminants from Pond 3.
4	Pond 4	The discharge from the capillary drainage system to the turnpike ditch should be sampled and analyzed for VOCs, semi-volatiles, pesticides/PCBs, and total metals. This discharge should be under permit. Groundwater assessment monitoring should continue to evaluate migration of contaminants from beneath Pond 4.
5	Pond 5	The discharge from the capillary drainage system to the turnpike ditch should be sampled and analyzed for VOCs, semi-volatiles, pesticides/PCBs, and total metals. This discharge should be under permit. Groundwater assessment monitoring should continue to evaluate migration of contaminants from beneath Pond 5.

6	Pond 6	Pond 6 must undergo formal RCRA closure including installation of post-closure monitoring wells. These monitoring wells should be incorporated into the current groundwater assessment monitoring program to evaluate migration of contaminants from SWMU.
7	Pond 7 (includes Pond 8)	Meyers Creek sediments should be sampled for semivolatiles, pesticides/PCBs, and total metals. The discharge from the capillary drainage system should be sampled and analyzed for VOCs, semivolatiles, pesticides/PCBs, and total metals. This discharge should be under permit. Groundwater assessment monitoring should continue to evaluate migration of contaminants from beneath Pond 7.
8	Pond 9 and Wet Well	Pond 9 and the Wet Well must undergo formal RCRA Closure including installation of post-closure care monitoring wells. These monitoring wells should be incorporated into the current groundwater assessment monitoring program to evaluate migration of contaminants from the SWMU.
9	Pond 10	Pond 10 must undergo formal RCRA closure including installation of post-closure care monitoring wells. These monitoring wells should be incorporated into the current ground water assessment monitoring program to evaluate migration of contaminants from the SWMU.

10	Pond 11	Monitoring wells L-20, L-21, L-22, L-28, L-34, and L-35 should be sampled for VOCs, semi-volatiles, and total metals. Meyers Creek sediment should be sampled for semivolatiles, pesticides/PCBs, and total metals. Proceed with closure of the pond and post-closure monitoring, if required, as soon as possible.
11	Pond 12	Monitoring wells L-22, L-29, L-31, L-32, and L-33 should be sampled for VOCs, semi-volatiles, and total metals. Proceed with closure of the pond and post-closure monitoring, if required, as soon as possible.
12	North Landfarm	Soil by the telephone pole and beneath in vegetated areas should be sampled for semi-volatiles, pesticides/PCBs, and total metals.
13	East Landfarm	No further action is required.
14	South Landfarm	No further action is required.
15	Oil Reclamation Facility	No further action is required.
16	Waste Pile	Ultimate ? disposal of waste pile materials should proceed as quickly as possible.
17	Leachate Retention Pond	Close Waste Pile and Retention Pond as soon as possible. Little Raccoon Creek sediments shoould be sampled for semivolatiles, pesticides/PCBs, and total metals. Install monitoring wells L-17, L-18, and L-25 and sample for VOCs, semi-volatiles, pesticides/PCBs, and total metals.
18	Old Tank Farm	CWM will try to clean-close tanks ? based on approval of soil data submitted to OEPA. No further action is required.
19	Old Drum Storage Pad	No further action is required.
20	Lab Waste Tank	No further action is required.

21	Truck Unloading and Washing Facility	No further action is required.
22	Grit Filters (aka Gravity Filters, Sand Interceptors)	No further action is required.
23	Waste Receiving Tanks (V-Tanks)	No further action is required.
24	Waste Head-Gas Scrubber	No further action is required.
25	New Tank Farm	No further action is required.
26	T-Tank Pump House	No further action is required.
27	Filter Building No. 1	No further action is required.
28	Sluice Pit	Sample soils outside of steel berm for semi-volatiles, pesticides/PCBs, and total metals. This unit should be closed under RCRA as it is no longer in use.
29	Filter Building No. 2	No further action is required.
30	Filtered Acid Tanks: FAT-A, FAT-B, FAT-C (aka FAT-1, FAT-6)	It is unlikely that soil sampling at the location of the 50-gallon spill would indicate contami-nation present. No further action is necessary.
31	Filtered Acid Tank, FAT-3	Due to the nature of the waste acids, it is unlikely that sampling of the spill area would reveal contamination. No further action necessary.
32	Pump House 3	Soil sampling would probably not indicate contamination present due to nature of the waste. No further action is required.
33	Filtered Acid Tank, FAT-1 (aka FAT-6)	No further action is required.
34	Pump House 1 (aka Pump House 6)	No further action is required.
35	Filtered Acid Tank, FAT-5	No further action is required.
36	Pump House 5	No further action is required.
37	Filtered Acid Tank, FAT-2	No further action is required.
38	Pump House 4 (aka Pump House 2)	No further action is required.

39	Old FAT-2 Containment	No further action is required.
40	Pump House 2	No further action is required.
41	Drum Storage Pad (90-day)	No further action is required.
42	Waste Lube Oil Tank	No further action is required.
43	Sanitary Wastewater Treatment Plant	No further action is required.
44	Truck Unloading Facility Cesspit	No further action is required.
45	Maintenance Building Cesspit	No further action is required.
A	Maintenance Tanks	Concrete vaults should be constructed around all tanks which currently do not have them.
B	North Parking Lot - Truck Unloading Facility	No further action is required.
C	Hay Mill Staging Area	No further action is required.
D	Borrow Pit 1	Sample surficial soil beneath the debris pile for PCBs and Total Metals. Sample sediment at north side of Borrow Pit for PCBs and Total Metals. Sample Meyers Creek sediment for PCBs and Total Metals.
E	Borrow Pit 2	No further action is required.

REFERENCES

1. Litigation Referral - U.S. EPA, Region V, dated September 3, 1983.

2. Evaluation of Chemical Waste Management, Inc., U.S. EPA Region V, Ohio EPA Hazardous Waste Ground Water Task Force, dated May, 1988.

3. RCRA Part B Permit Application for Vickery, Ohio Facility, Chemical Waste Management, Inc., Revision 4: October 28, 1988.

4. Release Notification, Vickery Ohio Facility, Chemical Waste Management, Inc., various dates.

5. Initial Report TSCA Landfill Permit Application Northern Ohio Treatment Facility, Vickery, Ohio, prepared by Golder Associates, dated November, 1983.

6. Volume II - Phase II of Closure Plan for Ponds, 4, 5, and 7, Vickery, Ohio Facility, prepared by Clement Association for Chemical Waste Management, Inc., dated May 8, 1985.

7. Aerial Photographic Analysis of the Ohio Liquid Disposal Facility, Vickery, Ohio prepared by Environmental Monitoring Systems lab, dated September, 1985.

8. Final Phase Report - Closed Lagoons to Rich Shank, Division of Hazardous Materials Management, OEPA from Kathy Trent, Region Environmentalist, Chemical Waste Management, Inc. dated December 6, 1983.

9. Report on PCB Data - Closed/Open Ponds, to Robert H. Maynard, OEPA, and Basil G. Constantelos, U.S. EPA, from Chemical Waste Management, Inc., Vickery Facility, dated March 6, 1984.

10. Letter to the Ohio Department of Natural Resources, from Peter Williamson, Ohio Liquid Disposal Inc., dated July 1, 1975.

11. Letter to John L. Deering, Division of Industrial Wastewater, OEPA, from Peter G. Miller, Plant Manager, Ohio Liquid Disposal, Inc., dated June 23, 1980.

12. Updated Letter to Kenneth Kerik, Board of Sandusky County General Health District, from Peter Williamson, Vice-President and General Manager, Ohio Liquid Disposal, Inc., dated August 14, 1978.

13. Monthly Progress Report, closure of Miscellaneous Facilities, Chemical Waste Management, Inc., dated February, 1986.

14. VSI Logbook for Chemical Waste Management, Inc., Vickery, Ohio Site, Louis E. Ehrhard, Jacobs Engineering Group Inc., May 8-9, 1990.

15 VSI Logbook for Chemical Waste Management, Inc., Vickery, Ohio Site, Ed Gorove, Jacobs Engineering Group Inc., May 8-9, 1990.

16. On site visit memorandum, OEPA staff, with Ron Shawl of Ohio Liquid Disposal Inc., on the status of site's facilities, dated July 2, 1981.

17. Report on Ohio Liquid Disposal Inc. Deep Well Disposal Facilities in Sandusky County, Ohio, from Bennet G. Chambers, Section Chief, Office of Land Pollution Control, dated July 10, 1979.

18. Monthly Progress Report to Michael Savage, Division of Solid and Hazardous Waste Management, OEPA, from Fred G. Nicar, Chemical Waste Management, Inc., dated December 5, 1989.

19. Letter to Steve Bowe, Chemical Waste Management, Inc., from Tom E. Carlisle, Manager, Division of Solid and Hazardous Waste Management, OEPA, dated December 23, 1985.

20. Letter to Kathy Trent, Chemical Waste Management, Inc., from James P. Haren, Division of Solid and Hazardous Waste Management, OEPA, dated August 16, 1985.

21. Volume II, Phase II of Closure Plan for Ponds 4, 5, and 7, Vickery, Ohio Facility, prepared by Clement Association for Chemical Waste Management, Inc., dated May 8, 1985.

22. Monthly Progress Report, Closure of Miscellaneous Facilities, Chemical Waste Management, Inc., dated August 1986.

23. Letter to Robert Maynard, Director, OEPA, from George Vander Velde, Chemical Waste Management, Inc., dated April 27, 1983.

24. Letter to Robert Maynard, Director, OEPA, from Milo D. Harrison, Chemical Waste Management, Inc., dated April 22, 1983.

25. Letter to Milo D. Harrison, President, Chemical Waste Management, Inc., from Basil G. Constantelos, Director, Waste Management, Division, OEPA, dated April 27, 1983.

26. Summary of Technical Issues, Chemical Waste Management, Vickery, Ohio, dated September 26, 1983.

27. Statement by Chemical Waste Management, Inc., discussing plans for ceasing oil reclamation operations and other practices at Vickery, Ohio facility, dated March 28, 1983.

28. Summary Report, Federal Consent Agreement Waste Characterization Site 490, prepared by Environmental Testing and Certification (ETC), for Chemical Waste Management, Inc., dated August, 1985.

29. Ambient Air Monitoring for Volatile Organic Compounds at Chemical Waste Management, Inc., Vickery, Ohio, No. B891-100(B). Prepared by Environmental Research and Technology, Inc., for Waste Management, Inc., Oakbrook, Illinois, dated October, 1983.

30. Acids from Active Ponds at the Vickery, Ohio Facility, No. B959-960(B). Prepared by Environmental Research and Technology, Inc., for Waste Management, dated October, 1983.

31. Superfund Release Report, prepared by the OEPA in response to a citizen complaint directed towards Chemical Waste Management, Inc., dated March 20, 1985 (EPA received date).

32. Letter to Michael Curry, Chemical Waste Management, Inc., from Gary H. Collison, Golder Associates, dated November 20, 1985.

33. Letter to Thomas Carlisle, OEPA, from Kathy Trent, Region Environmentalist, Chemical Waste Management, Inc., dated June 10, 1985.

34. Report, Assessment of Perimeter Containment Dike Stability Ponds 5, 7, 11, and 12, prepared by Golder Associates, for Chemical Waste Management, Inc., dated June 1983.

35. Letter to Thomas Carlisle, OEPA, from Steve Bowe, Environmental Manager, Chemical Waste Management, Inc., dated May 21, 1986.

36. Letter to Charles Hull and Jeffery Steers, Division of Solid and Hazardous Waste Management, OEPA, from Fred G. Nicar, Chemical Waste Management, Inc., dated June 16, 1989.

37. Tank System Release Report to Jim Leach and Thempton Toorkey, OEPA, from Scott Maris, Chemical Waste Management, Inc., date of release February 21, 1989.

38. Climatic Atlas of the United States, U.S. Dept. of Commerce, National Climactic Center, 1979.

39. Rainfall Frequency Atlas of the United States, Technical Paper No. 40, U.S. Dept. of Commerce, 1963.

40. Exposure Information Report for the Chemical Waste Management, Inc. Vickery Facility, Vickery, Ohio, August 8, 1985.

TABLES

TABLE 1

Unit Number	Solid Waste Management Unit	Release
1	Pond 1	Yes
2	Pond 2	Yes
3	Pond 3	Yes
4	Pond 4	Yes
5	Pond 5	Yes
6	Pond 6	Yes
7	Pond 7 (includes Pond 8)	Yes
8	Pond 9 and Wet Well	Yes
9	Pond 10	Yes
10	Pond 11	Yes
11	Pond 12	Yes
12	North Landfarm	Yes
13	East Landfarm	Suspected
14	South Landfarm	Suspected
15	Oil Reclamation Facility	Yes
16	Waste Pile	Suspected
17	Leachate Retention Pond	Yes

TABLE 1 (cont.)

Unit Number	Solid Waste Management Unit	Release
18	Old Tank Farm	Yes
19	Old Drum Storage Pad	Unknown
20	Lab Waste Tank	Yes
21	Truck Unloading and Washing Facility	Unknown
22	Grit Filters (aka Gravity Filters, Sand Interceptors)	Unknown
23	Water Receiving Tanks (V-Tanks)	Unknown
24	Waste Head-Gas Scrubber	Yes
25	New Tank Farm	Unknown
26	T-Tank Pump House	Unknown
27	Filter Building No. 1	Yes
28	Sluice Pit	Suspected
29	Filter Building No. 2 R. Closed?	Yes
30	Filtered Acid Tank: FAT-A, FAT-B, FAT-C (aka FAT-1,FAT-6)	Yes
31	Filtered Acid Tank, FAT-3	Yes
32	Pump House 3	Yes
33	Filtered Acid Tank, FAT-1 (aka FAT-6)	Unknown

TABLE 1 (cont.)

Unit Number	Solid Waste Management Unit	Release
34	Pump House 1 (aka Pump House 6)	Unknown
35	Filtered Acid Tank, FAT-5	Unknown
36	Pump House 5	Unknown
37	Filtered Acid Tank, FAT-2	Unknown
38	Pump House 4 (aka Pump House 2)	Unknown
39	Old FAT-2 Containment	Unknown
40	Pump House 2	Unknown
41	Drum Storage Pad (90-day)	Unknown
42	Waste Lube Oil Tank	Unknown
43	Sanitary Wastewater Treatment Plant	Unknown
44	Truck Unloading Facility Cesspit	Unknown
45	Maintenance Building Cesspit	Unknown
A	Maintenance Tanks	Unknown
B	North Parking Lot - Truck Unloading Facility	Unknown
C	Hay Mill Staging Area	Unknown
D	Borrow Pit 1	Unknown

TABLE 1 (cont.)

Unit Number	Solid Waste Management Unit	Release
E	Borrow Pit 2	Unknown

TABLE 2

Regulatory History Summary
Chemical Waste Management, Inc.
Vickery Facility
Vickery, Ohio

Date	Action	Comments
12-19-79	Preliminary Assessment (PA)	No action recommended
12-26-79	Preliminary Assessment (PA)	No action recommended
8-10-80	Notice of Hazardous Waste Activity	Submitted
11-19-80	RCRA Part A Application	Submitted most recent revision dated 10-4-85
12-2-80	OEPA RCRA Inspection	6 violations
12-8-80	Complaint and Findings of Violation	$2500 civil penalty, remediate out-of-compliance status
1-16-81	Response to Complaint and Findings	Response to the 6 violations listed and the civil penalty assessed in the complaint and findings of violation dated 12-18-80
1-22-81	Answer to Complaint	Court document containing issues presented in the response to complaint and findings of violation dated 1-16-81
1-22-81	U.S. EPA Region V RCRA Inspection	Request for Office of Emergency and Remedial Response (OERR) to sample and analyze "PUG" material for EP Tox. All violations listed in RCRA inspection dated 12-2-80 are remediated

Date	Action	Comments
1-29-81	Consent Agreement and Final Order	Issue regarding "PUG" material removed. $2500 civil penalty contested and not yet resolved.
2-9-81	Informal Settlement Conference	Conference regarding consent agreement and final order dated 1-29-81. Discussions regarding $2500 civil penalty justification
2-25-81	Court Order	Order for parties in the consent agreement and final order dated 1-29-81 to decide NLT 3-10-81 how the $2500 civil penalty issue will be determined
3-9-81	Court Order	Order final settlement on consent agreement and final order dated 1-29-81 to be extended NLT 3-24-81.
4-2-81	Supplemental Consent Agreement and Final Order	EP TOX will be down on "PUG" material. Civil penalty reduced to $2000.
9-2-81	OEPA RCRA Inspection	No violations
10-15-81	Certification by Administrative Law Judge	Official disposition and disposal of complaint and findings of violation dated 12-18-80
10-27-82	OEPA RCRA Inspection	1 violation
1-10-83	U.S. EPA Region V Letter of Warning	Violation of Sect 3004 RCRA
3-30-83	U.S. EPA Region V RCRA Inspection	Recommends PCB investigation in selected areas. Non-compliance regarding subpart F requirements

Date	Action	Comments
6-30-83	OEPA Director's Final Findings and Orders	Alleges numerous violations of Federal and state environmental laws and regulations. Orders compliance of violations
6-30-83	Facility Authorization	Authorization from OEPA Director for continuation of deep-well injection activities
5-22-84	Consent Decree between OEPA and CWM	Identifies numerous violations and deficiencies of state environmental protection codes. Civil penalty: $5 million. Compensatory damages: $2.4 million. Ohio superfund contribution: $2 million
7-25-84	N.O.P.E. Inc. Appeal of Permit to Install Approval. Findings of Fact and Final Order	Appeal by citizens group, regarding Ohio EPA director's approval of a surface water management plan. Director's order was reaffirmed
9-11-84	OEPA RCRA Inspection	Not in compliance with subpart F requirements.
9-19-84	OEPA Director's Final Findings and Order	4 violations resulting in two air releases of possible hazardous gases
9-25-84	OEPA Director's Final Findings and Order	Rescinds 2 orders issued on 9-19-84. Assesses a civil penalty of $40,000. Sets operating hours of the facility.
12-27-84	OEPA RCRA Inspection	4 violations found
4-5-85	U.S. EPA Complaint. Findings of Violation and Compliance Order	9 violations alleged. Civil penalty: $200,000 requested

Date	Action	Comments
4-5-85	Consent Agreement and Final Order (CAFO)	Addresses many RCRA Violations Orders, facility to come into compliance except as noted in CAFO. Civil penalty: $2.5 million
5-10-85	RCRA Part B Application	Submitted. The Part B has undergone numerous revisions with the most recently approved version dated 10-28-88.
12-11-85	OEPA RCRA Inspection	No violations
12-31-85	OEPA RCRA Inspection	Old groundwater monitoring system is not in compliance but under modification. Documentation under Subpart F in compliance
3-4-86	Hazardous Waste Release	Surface water release from retention area through a partially open gate
3-12-86	OEPA Enforcement Response	Situation evaluated. 5 violations found
8-12-86	U.S.EPA Comprehensive Groundwater Monitoring Evaluation	Omission is verbatim from
4-6-87	U.S. EPA/OEPA Hazardous Waste Groundwater Task Force Evaluation	CWM-V in violation of Paragraphs H (11) and H (12) of CAFO. Shallow (lacustrian) groundwater is found to be contaminated. Bedrock groundwater may also be contaminated.
11-7-88	U.S. EPA Region V issues approval of landfilling TSCA/RCRA Waste Pile in the TSCA/RCRA Closure Cell	On 11-8-88 Land Disposal Restrictions (LDR) prohibit the disposal of restricted wastes in the Closure Cell.

Date	Action	Comments
1-3-89	U.S. EPA Region V files Complaint for three RCRA violations	Civil action requests relief for: 1) managing hazardous waste in a unit which lost interim status (Pond 12), 2) failure to properly close Ponds 6W, 9, and 10, and 3) failure to submit semi-annual groundwater data as required by the CAFO.
5-8-90	U.S. EPA Region V performs a Visual Site Inspection	

FIGURES

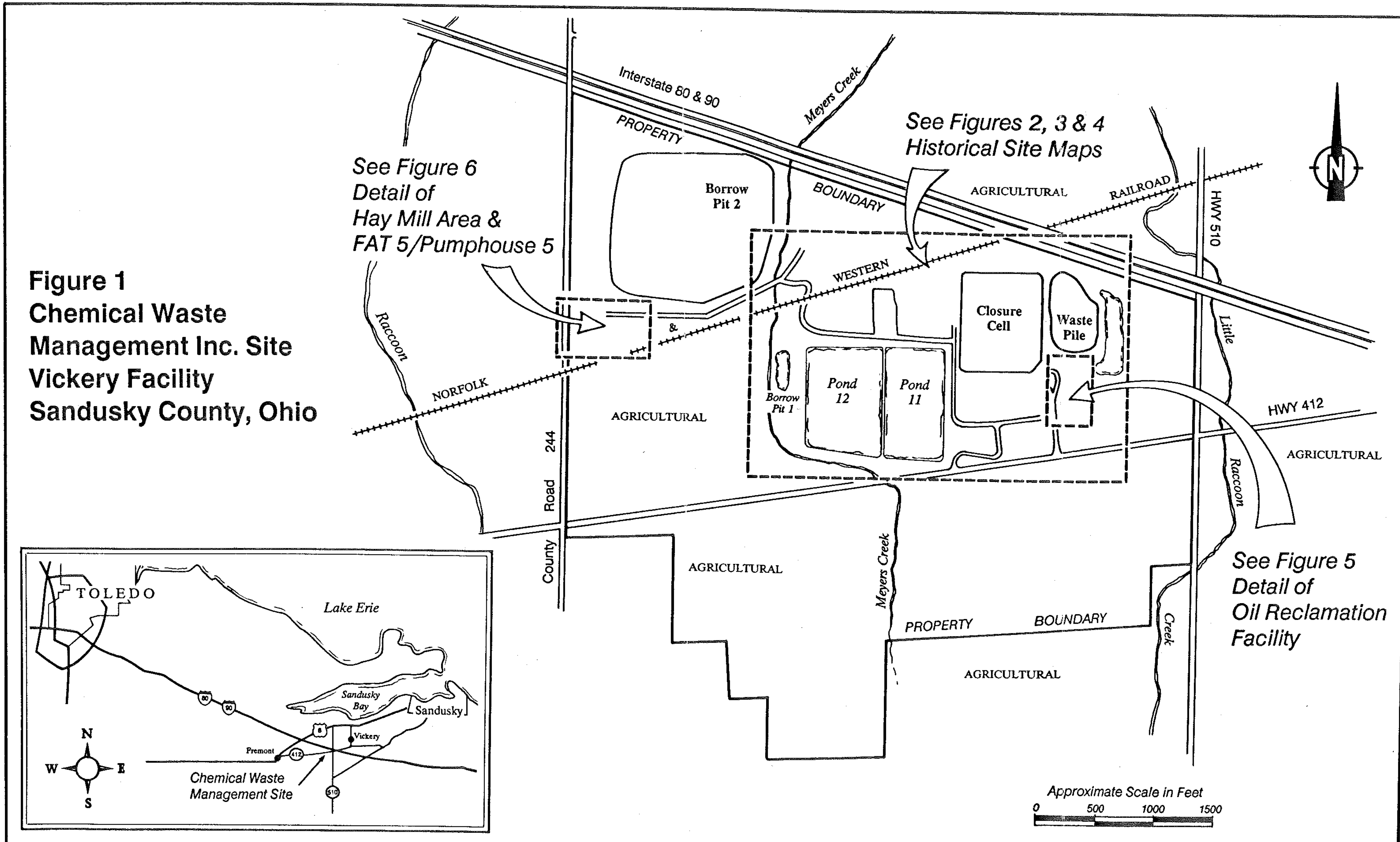


Figure 1
Chemical Waste
Management Inc. Site
Vickery Facility
Sandusky County, Ohio

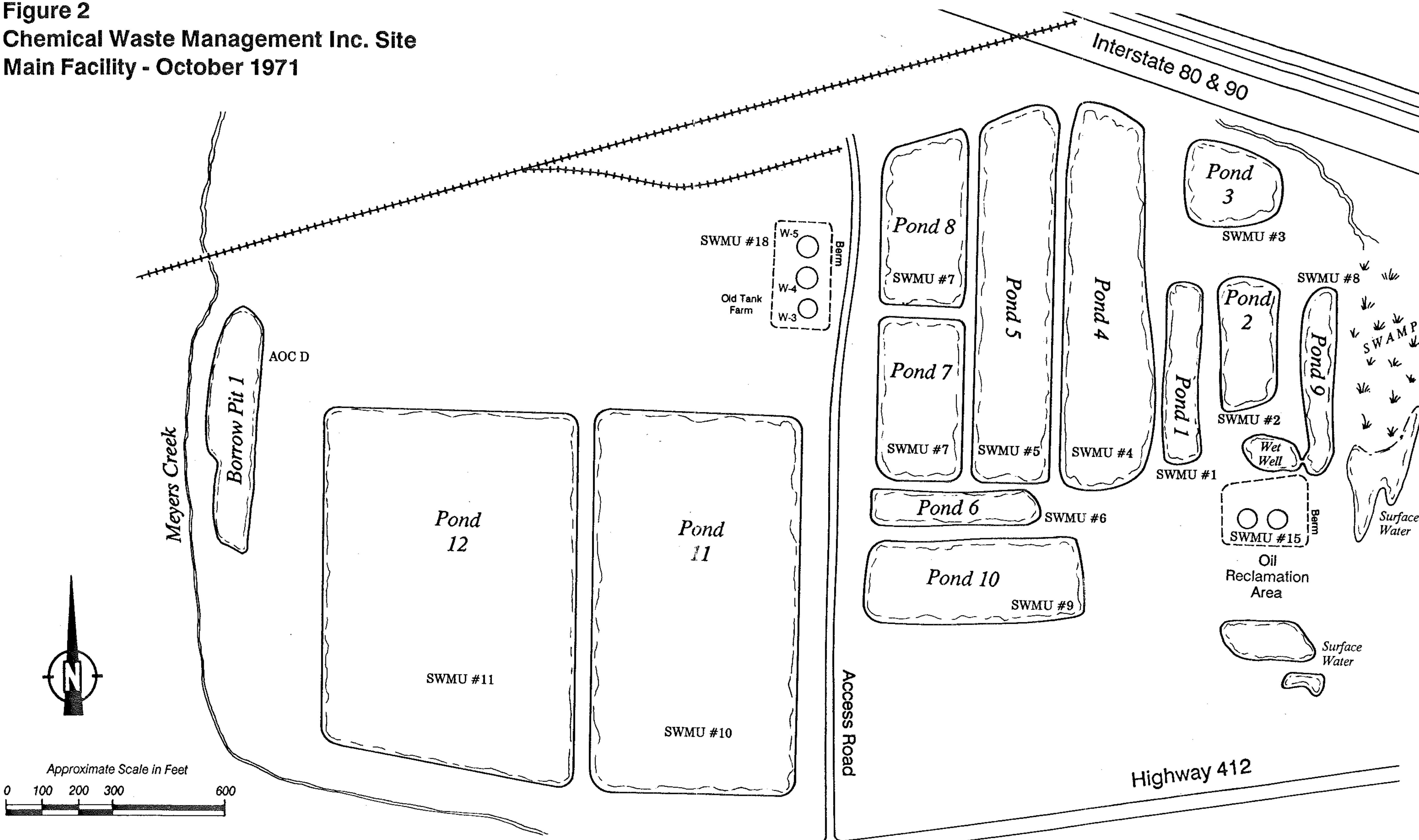
JE

Prepared by Jacobs Engineering Group Inc., Chicago
For the U.S. Environmental Protection Agency, 6/8/90

Sources: Lockeed Inc. - Aerial Photographs 5/23/85
Alpha Consultants, Ltd., - Facility Plan 1/12/87
Jacobs Engineering - Visual Site Inspection 5/8-9/90

Drawn DS
Checked LE

Figure 2
Chemical Waste Management Inc. Site
Main Facility - October 1971

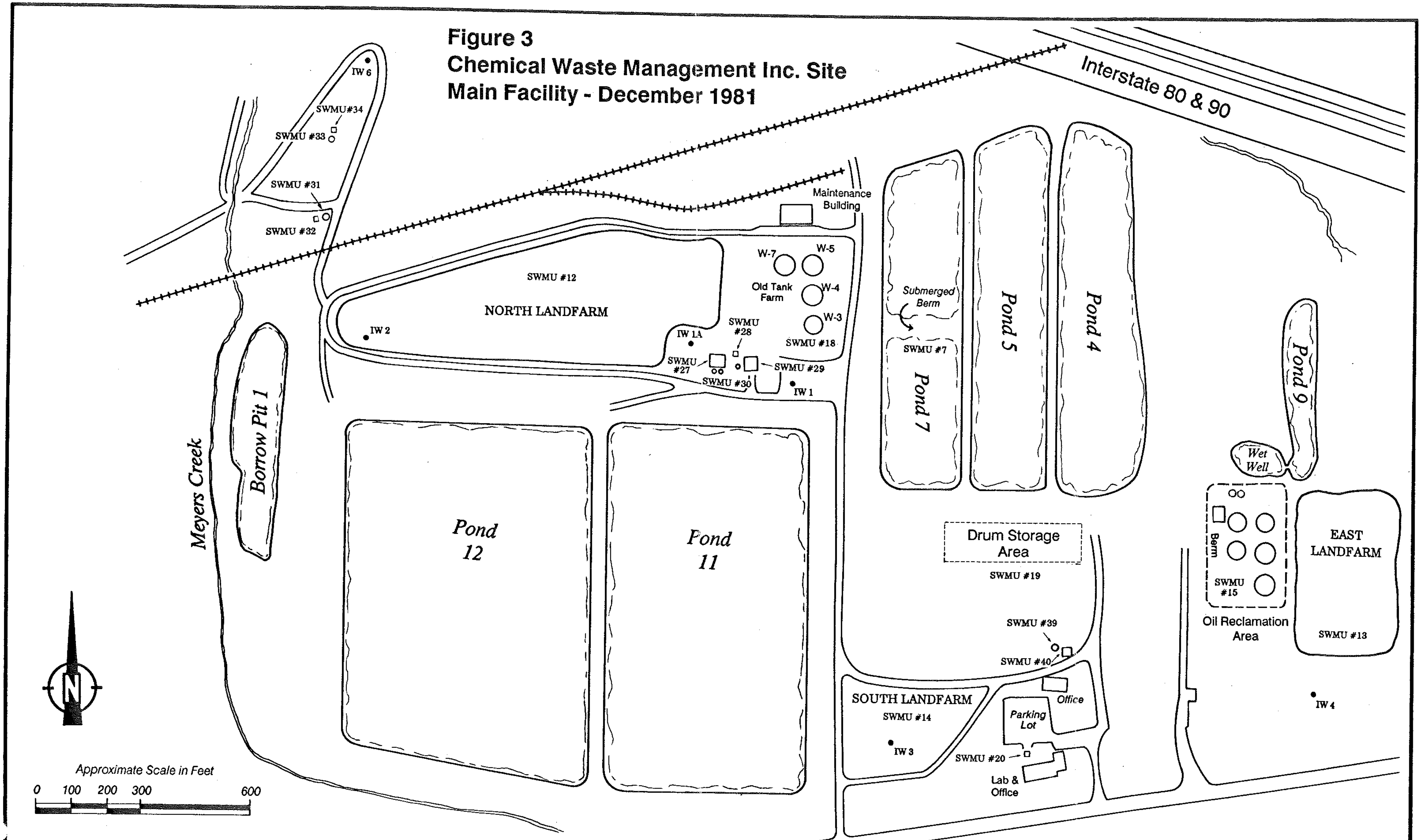


Prepared by Jacobs Engineering Group Inc., Chicago
For the U.S. Environmental Protection Agency, 6/28/90

Sources: J. L. Cronin - Survey Plat Map, July - October 1971
Golder Associates - Vickery Facility Site Plan, 7/29/83

Drawn DS
Checked LE

Figure 3
Chemical Waste Management Inc. Site
Main Facility - December 1981

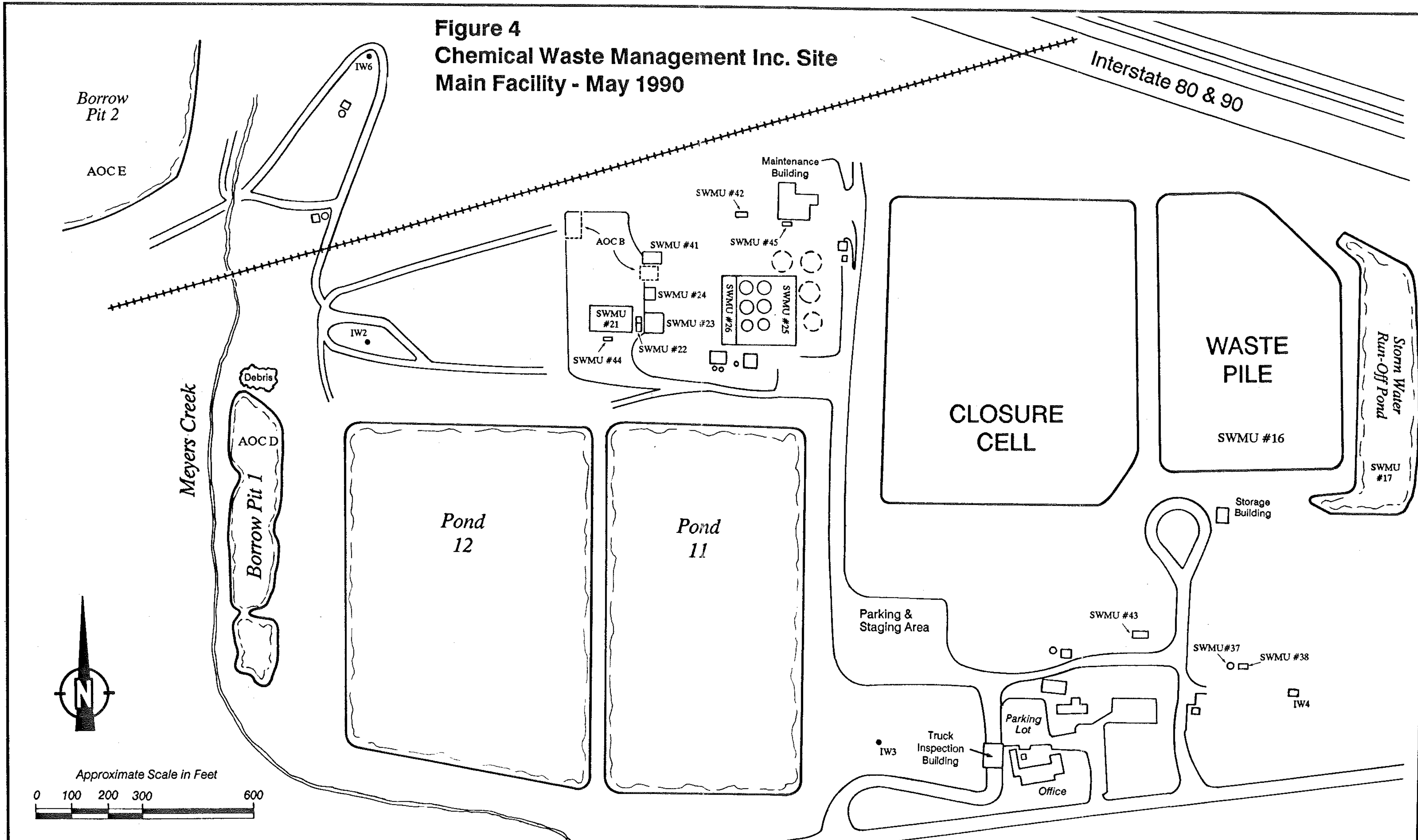


JE Prepared by Jacobs Engineering Group Inc., Chicago
For the U.S. Environmental Protection Agency, 6/28/90

Waste Management, Inc. - Ohio Liquid Disposal Diagram, 12/9/81
Golder Associates - Vickery Facility Site Plan, 7/29/83

Drawn DS
Checked LE

Figure 4
Chemical Waste Management Inc. Site
Main Facility - May 1990

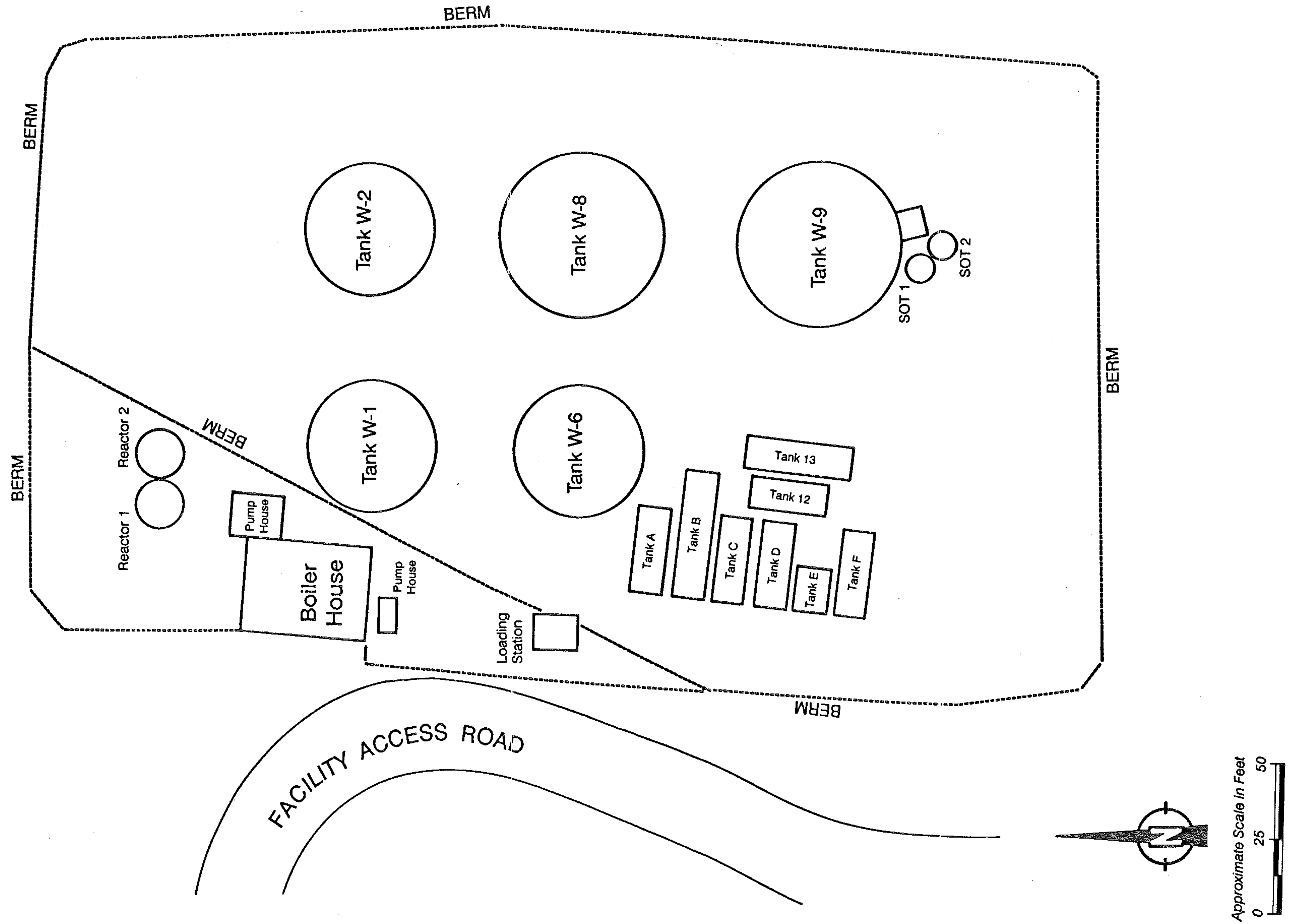


Prepared by Jacobs Engineering Group Inc., Chicago
For the U.S. Environmental Protection Agency, 7/6/90

Sources: Lockeed Inc. - Aerial Photographs 5/23/85
Alpha Consultants, Ltd., - Facility Plan 1/12/87
Jacobs Engineering - Visual Site Inspection 5/8-9/90

Drawn DS
Checked LE

Figure 5
Chemical Waste Management Inc. Site
Oil Reclamation Facility



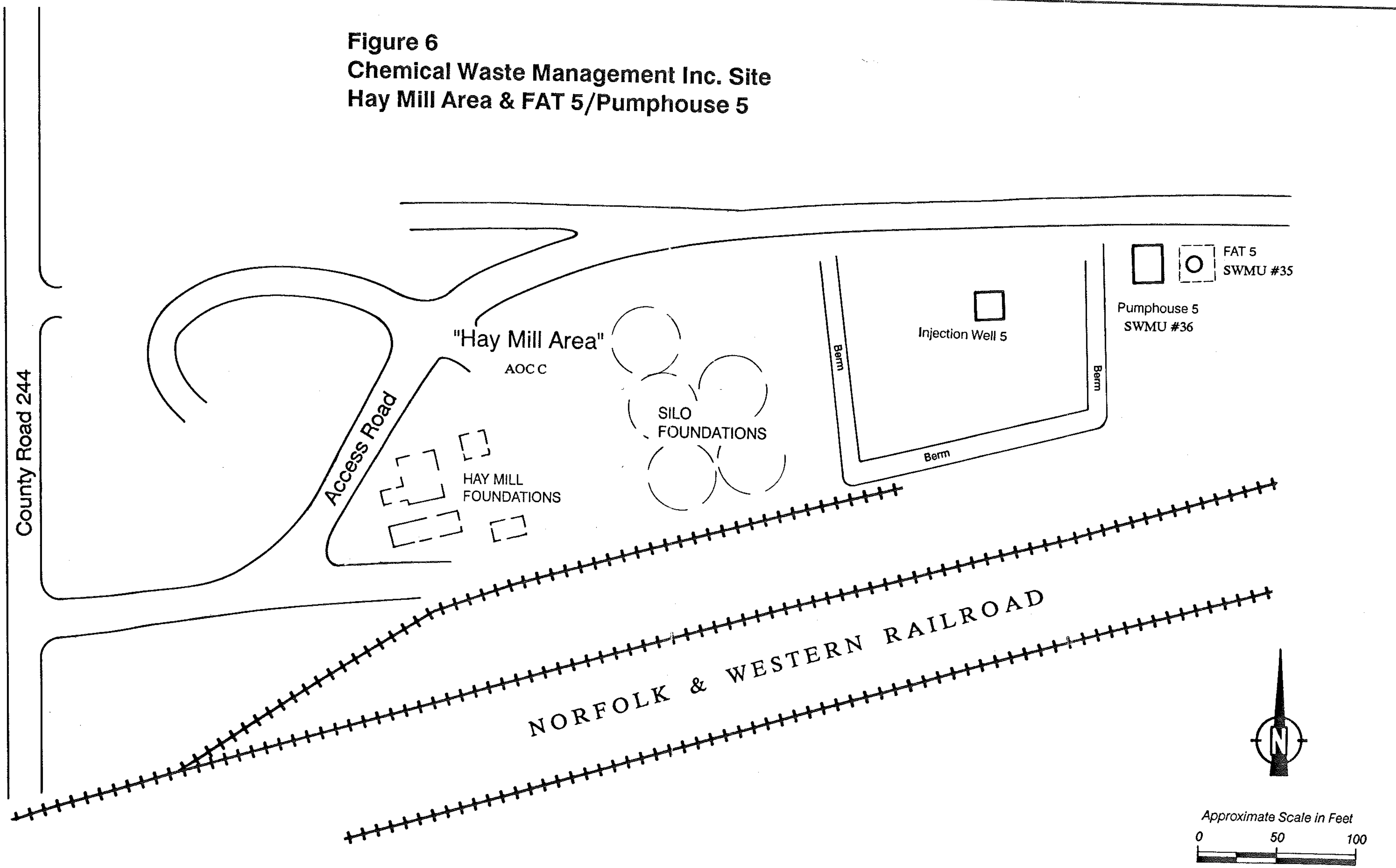
JE

Prepared by Jacobs Engineering Group Inc., Chicago
For the U.S. Environmental Protection Agency, 7/8/90

Sources: Lockeed Inc. - Aerial Photographs, 5/23/85
Chemical Waste Management, Inc. - Soil Removal Plan, 1985
Dames & Moore - Oil Recovery Area, Plot Plan

Drawn DS
Checked LE

Figure 6
Chemical Waste Management Inc. Site
Hay Mill Area & FAT 5/Pumphouse 5



Prepared by Jacobs Engineering Group Inc., Chicago
For the U.S. Environmental Protection Agency, 7/8/90

Sources: Lockeed Inc. - Aerial Photographs, 5/23/85
Golder Associates - Vickery Facility Drainage Patterns, 5/12/86

Drawn DS
Checked LE

ATTACHMENT A
HAZARDOUS WASTES ACCEPTED by CWM-V

TABLE 1: ANALYSES OF TEN LARGEST WASTE STREAMS*

1.	Spent Sulfuric Acid D002, K062	15-22% Sulfuric Acid 1-8% Ferrous Sulfate Balance Water	62,717,268 lbs.
2.	Spent Hydrochloric Acid K062	0.6-10% Hydrochloric Acid 4-10% Iron Balance Water	10,772,690 lbs.
3.	Wastewater from Solvent Recovery F003, F005	0-2% Methanol 3-9% Methyl Phosphates 1-3% Organic Acids 0.1-0.5% N,N'-Dimethyl Aniline 0.1-0.2% Dimethyl Siloxanes 30-70 ppm Phenol Balance Water and Salts	9,998,290 lbs.
4.	Spent Sulfuric Acid K062	4-10% H_2SO_4 4-10% Iron Balance Water	8,437,310 lbs.
5.	Spent Nitric, Hydrofluoric, and Sulfuric Acid Mix K062	0-7% H_2SO_4 0-5% HF 8-12% HNO_3 2-10% Iron Balance Water	7,873,470 lbs.
6.	Spent Sulfuric Acid D002, D008, D009	73% H_2SO_4 12% Organic Sulfates <4% Dimethyl Ether 10% Water <1% Methanol <0.5% Methylene Chloride, Chloroform, & Carbon Tetrachloride	6,938,600 lbs.

* Figures From 1984 Receipts.

TABLE 1: ANALYSES OF TEN LARGEST WASTE STREAMS* (continued)

7.	Spent Hydrochloric Acid K062	2.9-10% HCl 4.8-10% Iron 80-95% Water	6,202,610 lbs.
8.	Waste HCl/H_2SO_4 Liquor From Dichlorobenzidene Manufactoring D002	20-25% H_2SO_4 1-5% HCl 69-79% Water 0-1% 3,3'Dichlorobenzidine	5,235,040 lbs.
9.	H_2SO_4 and Nitric with Trace Organics D002	30-35% H_2SO_4 3-6% HNO_3 3-5% K_2SO_4 57.5-67.3% Water 0.1-0.8% Benezene Sulfonic Acids 0.1% Perchloroethylene	5,175,900 lbs.
10.	Scrubber Waste D002, D008, D010	70-90% Water 10-30% H_2SO_4 Trace Heavy Metals (Pb, Zn, Molybdenum)	5,071,230 lbs.

* Figures From 1984 Receipts.

TABLE 2

WASTE CHARACTERIZATION SUMMARY

Compound	Pond 11/12 Aqueous Composite µg/g	Pond 4 Sludge µg/g	Pond 5 Sludge µg/g	Pond 7 Sludge µg/g
Methanol	--	--	--	--
Chlorobenzene	113	1,316,000	1,168,800	1,440,800
Chloroform	40	137,840	84,920	65,200
Methyl Chloride	61	--	--	--
1,2-Dichloroethane	17	269,000	--	--
Methylene chloride	1,032	196,000	310,000	180,000
Methy ethyl ketone	836	--	--	--
Tetrachloroethene	14	267,770	237,270	--
Toluene	56	649,000	498,000	183,000
1,1,1-Trichloroethane	82	192,000	118,000	165,000
Trichloroethylene	41	211,400	246,446	143,000
Aniline	2,460	--	--	--
p-Chloro-m-cresol	18.6	--	--	--
o-Cresol	39	--	--	--
m+p-Cresol	90	--	--	--
1,2-Dichlorobenzene	--	22,600	28,300	376,000
2,4-Dimethylphenol	16.3	--	--	--
Phenol	42,900	125,000	--	--
2-Picoline	16	--	--	--
Antimony	7,000	40,000	50,000	120,000
Arsenic	183,000	63,000	100,000	320,000
Cadmium	1,710	2,000	1,000	4,200
Chromium	373,000	258,000	169,000	397,000
Lead	5,100	450,000	160,000	1,100,000
Mercury	3.4	2,300	2,300	2,700
Nickel	73,000	36,000	33,000	35,000
Chromium, Hexavalent	--	--	--	--
Heptachlor	--	600	220	--
Carbon tectrachloride	--	--	--	61,300
Tetrachloroethylene	--	--	--	295,000
Cyanide, Total	--	--	--	68,000

Notes:

-- indicates "not detected"

TABLE

TYPES OF WASTES RECEIVED BY CWM VICKERY (PROPOSED FACILITY)[a/]

TREATMENT SYSTEM	DESCRIPTION	TYPICAL EPA HAZARDOUS WASTE NUMBERS
1	Hydrochloric and Sulfuric Acid Pickle Liquor Wastes; Non-hydrofluoric Acid Rinse waters; Nitric and Chromic Acid Wastes	D001a/ through D017a/, F002 through F006a/, F012, F019, F024, K009,K010, K011, K013, K105, K031, K099, K044, K046, K050, K062, K064, K065, K066, K088, K090, K091, K100, K084, K101 through K105, K111, P010, P028, P033, P040, P041, P043, P044, P062 through P066, P068, P075 through P078, P081, P087, P088, P089, P094 through P097, P103, P111 through P116, P118, P119, P120, U005, U006, U008, U020, U021 through U028, U032, U034 through U039, U041 through U050, U052, U060 through U064, U066, U067, U069, U070 through U084, U087, U088, U097, U102, U103, U105 through U108, U112, U113, U114, U118, U119, U121, U122, U123, U127, U128 through U132, U134, U136, U144, U145, U146, U156, U157, U158, U162, U178, U183, U184, U185, U192, U204, U207 through U211, U214, U215, U216, U222, U226, U227, U228, U238, U243, U247, U248
1	Hydrofluoric and Nitric Acid Pickle Liquor Wastes; Hydrofluoric Acid Wastes; Hydrofluoric Acid Rinse Waters.	D001a/, D002, D004 through D017, F002 through F005a/, K002 through K008, K105, K031, K099, K044, K046, K050, K062, K084, K101, P043, P056, P057, P058, U005, U033, U075, U120, U134
2	Basic and Caustic Wastes; Basic Waste Rinse Waters; Leachates	D001 through D017a/, F001 through F012a/, F019, F024, K001 through K011, K013 through K024, K093, K094, K025 through K029, K095, K096, K030, K105, K031 through K034, K064, K065, K066, K088, K090, K091, K097, K035 through K041, K098, K042, K043, K099, K044 through K052, K060, K061, K069, K100, K084, K101, K102, K087, K071, K106, K073, K083, K103, K104, K085, K105, K111 through K118, K136, P001 through P018, P020 through P024, P026 through P031, P033, P034, P036 through P051, P054, P056 through P060, P062 through P078, P081, P082, P084, P085, P087, P088, P089, P092 through P099, P101 through P116, P118 through P123, U001 through U039, U041 through U053, U055 through U064, U066 through U099, U101, U102, U103, U105 through U133, U135 through U174, U176 through U196, U197, U200 through U211, U213, U223, U225 through U228, U234 through U240, U243, U244, U246 through U249, U328, U353, U359
3	Neutral Waters; Brines; Salt Solutions; Leachates; Site Generated Waters	D001a/, D002, D004 through D017, F001 through F012a/, F019, F024, K001 through K011, K013 through K024, K093, K094, K025 through K029, K064, K065, K066, K088, K090, K091, K095, K096, K030, K105,K031 through K034, K097, K035 through K041, K098, K042, K043, K099, K044 through K052, K060, K061, K069, K100, K084, K101,

a/ CWM Vickery does not accept wastes that exhibit the characteristics of reactivity for treatment. Some wastes accepted are classified as D001, D003, F003, etc., by the waste generator; however, these wastes designated for treatment at Vickery do not actually exhibit the characteristics of reactivity as defined in 40 CFR Part 261.21 and 261.23 as certified by waste analysis by the generator and verified by CWM Vickery.

TABLE C-2 (Continued)

TYPES OF WASTES RECEIVED BY CWM VICKERY (PROPOSED FACILITY)[a/]

TREATMENT SYSTEM	DESCRIPTION	TYPICAL EPA HAZARDOUS WASTE NUMBERS
		K102, K087, K071, K106, K073, K083, K103, K104, K085, K105, K111 through K118, K136, P001 through P018, P020 through P024, P026 through P031, P033, P034, P036 through P051, P054, P056 through P060, P062 through P078, P081, P082, P084, P085, P087, P088, P089, P092 through P099, P101 through P116, P118 through P123, U001 through U012, U014 through U039, U041 through U053, U055 through U064, U066 through U099, U101, U102, U103, U105 through U133, U135 through U174, U176 through U194, U196, U197, U200 through U211, U213 through U223, U225 through U228, U234 through U240, U243, U244, U246 through U249, U328, U353, U359
3	Aqueous Waste; Slurries	D001 through D017a/, F001 through F012a/, F019, F024, K001, K009, K010, K011, K013 through K024, K064, K065, K066, K088, K090, K091, K093, K094, K025 through K029, K095, K096, K030, K105, K031 through K034, K097, K035 through K041, K098, K042, K043, K099, K044 through K052, K061, K062, K069, K100, K084, K101, K102, K087, K071, K073, K083, K103, K104, K085, K105, K111 through K118, K136, P001 through P018, P020 through P024, P026 through P031, P033, P034, P036 through P051, P054, P056 through P060, P062 through P078, P081, P082, P084, P085, P087, P088 P089, P092 through P099, P101 through P116, P118 through P123, U001 through U012, U014 through U039, U041 through U053, U055 through U064, U066 through U099, U101, U102, U103, U105 through U174, U176 through U194, U196, U197, U200 through U211, U213 through U223, U225 through U228, U234 through U240, U243, U244, U246 through U249, U328, U353, U359
3	Drum Decant Wastes	D001 through D017a/, F001 through F012a/, F019, F024, K001, K009, K010, K011, K013 through K024, K064, K065, K066, K088, K090, K091, K093, K094, K025 through K029, K095, K096, K030, K105, K031 through K034, K097, K035 through K041, K098, K042, K043, K099, K044 through K052, K061, K062, K069, K100, K084, K101, K102, K087, K071, K073, K083, K103, K104, K085, K105, K111 through K118, K136, P001 through P018, P020 through P024, P026 through P031, P033, P034, P036 through P051, P054, P056 through P060, P062 through P078, P081, P082, P084, P085, P087, P088, P089, P092 through P099, P101 through P116, P118 through P123, U001 through U012, U014 through U039, U041 through U053, U055 through U064, U066 through U099, U101, U102, U103, U105 through U174, U176 through U194, U196, U197, U200 through U211, U213 through U223, U225 through U228, U234 through U240, U243, U244, U246 through U249, U328, U353, U359

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TABLE C.3: D, F, and K EPA WASTE CODES ACCEPTED AT CWM VICKERY (PROPOSED FACILITY)[a/]

EPA Identification Number (if available)	Waste Common Name	Hazard Characteristic (i.e., corrosive, toxic, reactive, or ignitable)	Basis for Hazard Designation (EPA number, flash point, reactivity, pH, or EP toxicity constituents and concentrations)
D001	Ignitable waste	Ignitable	Flash point
D002	Corrosive waste	Corrosive	pH
D003	Reactive waste	Reactive	Reactivity
D004	Arsenic	EP Toxic	Arsenic
D005	Barium	EP Toxic	Barium
D006	Cadmium	EP Toxic	Cadmium
D007	Chromium	EP Toxic	Chromium
D008	Lead	EP Toxic	Lead
D009	Mercury	EP Toxic	Mercury
D010	Selenium	EP Toxic	Selenium
D011	Silver	EP Toxic	Silver
D012	Endrin	EP Toxic	1,2,3,4,10,10-hexachloro-1, 7-epoxy-1,4,4a,5,6,7,8,8a- octahydro-1,4-endo, endo-5, 8-dimethano naphthalene
D013	Lindane	EP Toxic	1,2,3,4,5,6-hexachloro- cyclohexane, gamma isomer
D014	Methoxychlor	EP Toxic	1,1,1-Trichloro-2,2-bis[p- methoxyphenyl] ethane
D015	Toxaphene	EP Toxic	C10H10Cl8, Technical chlorinated camphene, 67-69 percent chlorine

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TABLE C.3 (continued)[a/]

EPA Identification Number (if available)	Waste Common Name	Hazard Characteristic (i.e., corrosive, toxic, reactive, or ignitable)	Basis for Hazard Designation (EPA number, flash point, reactivity, pH, or EP toxicity constituents and concentrations)
D016	2,4-D	EP Toxic	2,4-D (2,4-Dichlorophenoxy- acetic acid)
D017	2,4,5-TP Silvex	EP Toxic	2,4,5-Trichlorophenoxypropionic acid
F001	Spent halogenated solvents used in degreasing	Toxic	Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chlorinated fluorocarbons
F002	Spent halogenated solvents	Toxic	Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro- 1,2,2-trifluoroethane, orthodi- chlorobenzene, trichlorofluoro- methane
F003	Spent non-halogenated solvents	Ignitable	N.A.
F004	Spent non-halogenated solvents	Toxic	Cresols and cresylic acid, nitrobenzene
F005	Spent non-halogenated solvents	Ignitable, Toxic	Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine
F006	Wastewater treatment sludges from electro-plating	Toxic	Cadmium, hexavalent chromium, nickel, cyanide (complexed)
F007	Spent cyanide plating bath; solutions from electroplating	Toxic, Reactive	Cyanide (salts)

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TABLE C.3 (continued)[a/]

EPA Identification Number (if available)	Waste Common Name	Hazard Characteristic (i.e., corrosive, toxic, reactive, or ignitable)	Basis for Hazard Designation (EPA number, flash point, reactivity, pH, or EP toxicity constituents and concentrations)
F008	Plating bath sludges	Toxic, Reactive	Cyanide (salts)
F009	Spent stripping and cleaning bath solutions from electroplating	Toxic, Reactive	Cyanide (salts)
F010	Spent cyanide solutions from salt bath cleaning from metal heat treating	Toxic, Reactive	Cyanide (salts)
F011	Spent cyanide solutions from salt bath cleaning from metal heat treating	Toxic, Reactive	Cyanide (salts)
F012	Quenching wastewater treatment sludges from metal heat treating	Toxic	Cyanide (complexed)
F019	Wastewater treatment sludges	Toxic	Hexavalent chromium, cyanide (complexed)

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TABLE C.3 (continued)[a/]

EPA Identification Number (if available)	Waste Common Name	Hazard Characteristic (i.e., corrosive, toxic, reactive, or ignitable)	Basis for Hazard Designation (EPA number, flash point, reactivity, pH, or EP toxicity constituents and concentrations)
F024	Wastes from the production of chlorinated aliphatic hydracarbons	Toxic	Chloromethane, dichloromethane, trichloromethane, carbon tetrachloride, chloroethylene, 1,1-dichloroethane, 1,2-dichloroethane, trans-1-2-dichloroethylene, 1,1-dichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethylene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, tetrachloroethylene, pentachloroethane, hexachloroethane, allyl chloride (3-chloropropene), dichloropropane, dichloropropene, 2-chloro-1,3-butadiene, hexachloro-1,3-butadiene, hexachlorocyclopentadiene, hexachlorocyclohexane, benzene, chlorobenzene, dichlorobenzenes, 1,2,4-trichlorobenzene, tetrachlorobenzene, pentachlorobenzene, hexachlorobenzene, toluene, naphthalene

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TABLE C.3 (co[illegible]ied)[a/]

EPA Identification Number (if available)	Waste Common Name	Hazard Characteristic (i.e., corrosive, toxic, reactive, or ignitable)	Basis for Hazard Designation (EPA number, flash point, reactivity, pH, or EP toxicity constituents and concentrations)
K001	Bottom sediment sludge	Toxic	Pentachlorophenol, phenol, 2-chlorophenol, p-chloro-m-cresol, 2,4-dinitrophenol, trichlorophenols, tetra-chlorophenols, 2,4-dinitropheno creosote, chrysene, naphthalene, fluoranthene, benzo(b)fluoranthene, benzo(a) pyrene, indeno (1,2,3-cd) pyrene, benz-(a)anthracene, dibenzo(a)anthracene, acenaphthalene
K002	Wastewater treatment sludge	Toxic	Hexavalent chromium, lead
K003	Wastewater treatment sludge	Toxic	Hexavalent chromium, lead
K004	Wastewater treatment sludge	Toxic	Hexavalent chromium
K005	Wastewater treatment sludge	Toxic	Hexavalent chromium, lead
K006	Wastewater treatment sludge	Toxic	Hexavalent chromium
K007	Wastewater treatment sludge	Toxic	Cyanide (complexed), hexavalent chromium
K008	Oven residue	Toxic	Hexavalent chromium
K009	Distillation bottoms	Toxic	Chloroform, formaldehyde, methylene chloride, methyl chloride, paraldehyde, formic acid

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TABLE C.3 (continued)[a/]

EPA Identification Number (if available)	Waste Common Name	Hazard Characteristic (i.e., corrosive, toxic, reactive, or ignitable)	Basis for Hazard Designation (EPA number, flash point, reactivity, pH, or EP toxicity constituents and concentrations)
K010	Distillation side cuts	Toxic	Chloroform, formaldehyde, methylene chloride, methyl chloride, paraldehyde, formic acid, chloroacetaldehyde
K011	Bottom stream from wastewater stripper	Toxic, Reactive	Acrylonitrile, acetonitrile, hydrocyanic acid
K013	Bottom stream from acetonitrile column	Toxic, Reactive	Hydrocyanic acid, acrylonitrile, acetonitrile
K014	Bottoms from acetonitrile purification	Toxic	Acetronitrile, acrylamide
K015	Still bottoms from distillation	Toxic	Benzyl chloride, chlorobenzene, toluene, benzotrichloride
K016	Heavy ends or distillation residues	Toxic	hexachlorobenzene, hexachlorobutadiene, carbon tetrachloride, hexachloroethane, perchloroethylene
K017	Heavy ends (still bottoms)	Toxic	Epichlorohydrin, chloroethers (bis(chloromethyl) ether and bis(2-chloroethyl) ethers), trichloropropane, dichloropropanols
K018	Heavy ends	Toxic	1,2-dichloroethane, trichloroethylene, hexachlorobutadiene, hexachlorobenzene

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TABLE C.3 (continued)[a/]

EPA Identification Number (if available)	Waste Common Name	Hazard Characteristic (i.e., corrosive, toxic, reactive, or ignitable)	Basis for Hazard Designation (EPA number, flash point, reactivity, pH, or EP toxicity constituents and concentrations)
K019	Heavy ends	Toxic	Ethylene dichloride, 1,1,1- trichlorethane, 1,1,2- trichlorethane, and 1,1,1,2- tetrachloroethane, trichloro- ethylene, tetrachloroethylene, carbon tetrachloride, chloro- form, vinyl chloride, vinylidene chloride
K020	Heavy ends	Toxic	Ethylene dichloride, 1,1,1- trichlorethane, 1,1,2- trichloroethane, tetrachloro- ethanes (1,1,2,2-tetrachloro- ethane and 1,1,1,2-tetrachloro- ethane), trichloroethylene, tetrachloroethylene, carbon tetrachloride, chloroform, vinyl chloride, vinylidene chloride
K021	Aqueous spent antimony catalyst	Toxic	Antimony, carbon tetrachloride, chloroform
K022	Distillation bottom tars	Toxic	Phenol, tars (polycyclic aromatic hydrocarbons)
K023	Distillation light ends	Toxic	Phthalic anhydride, maleic anhydride
K024	Distillation bottoms	Toxic	Phthalic anhydride, 1,4-naphtho- quinone
K064	Acid plant blowdown slurry/sludge from thickening of blowdown slurry from primary copper production	Toxic	Lead, Cadmium

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TABLE C.3 (co[illegible]ed)[a/]

EPA Identification Number (if available)	Waste Common Name	Hazard Characteristic (i.e., corrosive, toxic, reactive, or ignitable)	Basis for Hazard Designation (EPA number, flash point, reactivity, pH, or EP toxicity constituents and concentrations)
K065	Surface impoundment solids contained in and degraded from surface impoundments at primary lead smelting facilities	Toxic	Lead, Cadmium
K066	Sludge from treatment of process wastewater and/or acid plant blowdown from primary zinc production	Toxic	Cadmium, Lead
K088	Spent potliners from primary aluminum reduction	Toxic	Iron Cyanide, Free Cyanide
K090	Emission control dust or sludge from ferrochromium-silicon production	Toxic	Chromium
K091	Emission control dust or sludge from ferrochromium production	Toxic	Chromium
K093	Distillation light ends	Toxic	Phthalic anhydride, maleic anhydride
K094	Distillation bottoms	Toxic	Phthalic anhydride
K025	Distillation bottoms	Toxic	Meta-dinitrobenzene, 2,4-dinitrotoluene
K026	Stripping still tails	Toxic	Paraldehyde, pyridines, 2-picoline
K027	Centrifuge and distillation residues	Toxic, Reactive	Toluene diisocyanate, toluene-2,4-diisocyanate
K028	Spent catalyst	Toxic	1,1,1-trichloroethane, vinyl chloride

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TABLE C.3 (co[illegible]ued)[a/]

EPA Identification Number (if available)	Waste Common Name	Hazard Characteristic (i.e., corrosive, toxic, reactive, or ignitable)	Basis for Hazard Designation (EPA number, flash point, reactivity, pH, or EP toxicity constituents and concentrations)
K029	Product steam stripper	Toxic	1,2-dichloroethane, 1,1,1-tri- chloroethane, vinyl chloride, vinylidene chloride, chloroform
K095	Distillation bottoms	Toxic	1,1,2-trichloroethane, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane
K096	Heavy ends	Toxic	1,2 dichloroethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane
K030	Column bottoms or heavy ends	Toxic	Hexachlorobenzene, hexachloro-butadiene, hexachloroethane, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachlorethane, ethylene dichloride
K083	Distillation bottoms	Toxic	Aniline, diphenylamine, nitrobenzene, phenylenediamine
K103	Process residues	Toxic	Aniline, nitrobenzene, phenylenediamine
K104	Combined wastewater streams	Toxic	Aniline, benzene, diphenylamine, nitrobenzene, phenylenediamine
K085	Distillation or frac-tionation column bottoms	Toxic	Benzene, dichlorobenzenes, trichlorobenzenes, tetrachloro-benzenes, pentachlorobenzene, hexachlorobenzene, benzyl chloride
K105	Separated aqueous stream	Toxic	Benzene, monochlorobenzene, dichlorobenzenes, 2,4,6- trichlorophenol
K111	Product washwaters from production of dinitrotoluene via nitration of toluene	Toxic, Corrosive	2,4-Dinitrotoluene
K112	Reaction by-product water from drying column	Toxic	2,4-Toluenediamine, o-Toluidine, p-Toluidine, aniline
K113	Condensed liquid light ends	Toxic	2,4-Toluenediamine, o-Toluidine, p-Toluidine, aniline

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TABLE C.3 (continued)[a]

EPA Identification Number (if available)	Waste Common Name	Hazard Characteristic (i.e., corrosive, toxic, reactive, or ignitable)	Basis for Hazard Designation (EPA number, flash point, reactivity, pH, or EP toxicity constituents and concentrations)
K114	Vicinals from purification of Toluenediamine	Toxic	2,4-Toluenediamine, o-Toluidine, p-Toluidine
K115	Heavy ends from purification of Toluenediamine	Toxic	2,4-Toluenediamine
K116	Organic condensate from solvent recovery column	Toxic	Carbon tetrachloride, tetrachloroethylene, chloroform, phosgene
K117	Wastewater from the reactor vent gas scrubber in the production of ethylene dibromide via bromination of ethlene	Toxic	Ethylene dibromide
K118	Spent absorbent solids from purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.	Toxic	Ethylene dibromide
K136	Still bottoms from the purification of ethylene ethylene dibromide in the production of ethylene dibromide via bromination of ethene.	Toxic	Ethylene dibromide
K071	Brine purification muds	Toxic	Mercury
K073	Chlorinated hydrocarbon wastes	Toxic	Chloroform, carbon tetra- chloride, hexachloroethane, trichloroethane, tetrachloro- ethylene, dichloroethylene 1,1,2,2-tetrachloroethane

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TABLE C.3 (continued)[a/]

EPA Identification Number (if available)	Waste Common Name	Hazard Characteristic (i.e., corrosive, toxic, reactive, or ignitable)	Basis for Hazard Designation (EPA number, flash point, reactivity, pH, or EP toxicity constituents and concentrations)
K106	Wastewater treatment sludge	Toxic	Mercury
K031	By-product salts	Toxic	Arsenic
K032	Wastewater treatment sludge	Toxic	Hexachlorocyclopentadiene
K033	Wastewater and scrub water	Toxic	Hexachlorocyclopentadiene
K034	Filter solids	Toxic	hexachlorocyclopentadiene
K097	Vacuum stripper discharge	Toxic	Chlordane, heptachlor
K035	Wastewater treatment sludges	Toxic	Cresote, chrysene, naphthalene, fluoranthene benzo(b) fluor- anthene, benzo(a)pyrene, indeno (1,2,3-cd) pyrene, benzo(a) anthracene, dibenzo(a) anthracene, acenaphthalene
K036	Still bottoms	Toxic	Toluene, phosphorodithoic and phosphorothioic acid esters
K037	Wastewater treatment sludges	Toxic	Toluene, phosphorodithioic and phosphorothioic acid esters
K038	Wastewater from washing and stripping	Toxic	Phorate, formaldehyde, phosphorodithioic and phosphoro- thioic acid esters
K039	Filter cake	Toxic	Phosphorodithioic and phosphorothioic acid esters

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TABLE C.3 (continued)[a/]

EPA Identification Number (if available)	Waste Common Name	Hazard Characteristic (i.e., corrosive, toxic, reactive, or ignitable)	Basis for Hazard Designation (EPA number, flash point, reactivity, pH, or EP toxicity constituents and concentrations)
K040	Wastewater treatment sludge	Toxic	Phorate, formaldehyde, phosphorodithioic and phosphorothioic acid esters
K041	Wastewater treatment sludge	Toxic	Toxaphene
K098	Untreated process wastewater	Toxic	Toxaphene
K042	Heavy ends or distillation residues	Toxic	Hexachlorobenzene, ortho-dichlorobenzene
K043	2,6 dichlorophenol waste	Toxic	2,4-dichlorophenol, 2,6-dichlorophenol, 2,4,6-trichlorophenol
K099	Untreated wastewater	Toxic	2,4-dichlorophenol, 2,4,6-trichlorophenol
K044	Wastewater treatment sludges from the manufacturing and processing of explosives	Reactive	Reactivity
K045	Spent carbon from the treatment of wastewater after containing explosives	Reactive	Reactivity
K046	Wastewater treatment sludges	Toxic	Lead

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TABLE C.3 (co[illegible]ed)[a/]

EPA Identification Number (if available)	Waste Common Name	Hazard Characteristic (i.e., corrosive, toxic, reactive, or ignitable)	Basis for Hazard Designation (EPA number, flash point, reactivity, pH, or EP toxicity constituents and concentrations)
K047	Pink/Red water from TNT operation	Reactive	Reactivity
K048	DAF/float	Toxic	Hexavalent chromium, lead
K049	Slop oil emulsion solids	Toxic	Hexavalent chromium, lead
K050	Heat exchanger cleaning sludge	Toxic	Hexavalent chromium
K051	API separator sludge	Toxic	Hexavalent chromium, lead
K052	Tank bottoms	Toxic	Lead
K061	Emission control dust/sludge	Toxic	Hexavalent chromium, lead, cadmium
K062	Spent pickle liquor	Corrosive, Toxic	Hexavalent chromium, lead
K069	Emission control dust/sludge	Toxic	Hexavalent chromium, lead, cadmium
K100	Waste leaching solution	Toxic	Hexavalent chromium, lead, cadmium
K084	Wastewater treatment sludges	Toxic	Arsenic
K101	Distillation tar residues	Toxic	Arsenic
K102	Residue from activated carbon	Toxic	Arsenic
K060	Ammonia still lime sludge from coking operations	Toxic	Cyanide, naphthalene, phenolic compounds, arsenic
K087	Decanter tank tar sludge	Toxic	Phenol, naphthalene

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TABLE C-4: EPA U AND P WASTE CODES ACCEPTED AT CWM VICKERY (PROPOSED FACILITY)[a/]

The following materials are identified as acute hazardous waste (H) or toxic waste (T). The basis for listing is indicated by capital letters in parentheses: I = ignitable; C = corrosive; T = toxic. (No reactive materials are accepted at this facility.) If no letter is shown, the compound is listed only for toxicity.

EPA Hazardous Waste No.	Substance
P001	3-(alpha-acetonylbenzyl)-4-hydroxycoumarin and salts, Warfarin
P002	1-Acetyl-2-thiourea, N-(aminothioxomethyl)-acetamide
P003	Acrolein, 2-Propenal
P004	Aldrin, 1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo,exo-dimethanonaphthalene
P005	Allyl alcohol, 2-Propen-1-ol
P006	Aluminum phosphide
P007	5-(Aminomethyl)-3-(2H)-isoxazolone
P008	4-Aminopyridine, 4-Pyridinamine
P009	Ammonium picrate, 2,4,6-trinitrophenol, ammonium salt (R)
P010	Arsenic acid
P011	Arsenic pentoxide, Arsenic (V) oxide
P012	Arsenic trioxide, Arsenic (III) oxide
P013	Barium Cyanide
P014	Benzenethiol, Thiophenol
P015	Beryllium dust
P016	Bis(chloromethyl) ether, oxybis-chloromethane
P017	Bromoacetone, 1-bromo-2-propanone
P018	Brucine

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TABLE C-4 (continued)[a/]

EPA Hazardous Waste No.	Substance
P020	2-sec-Butyl-4,6-dinitrophenol, Dinoseb, 2,4-dinitro-6-(1-methylpropyl)phenol
P021	Calcium cyanide
P022	Carbon disulfide, Carbon bisulfide
P023	Chloroacetaldehyde
P024	p-Chloroaniline, 4-Chloro-Benzeneamine
P026	1-(o-Chlorophenyl) thiourea, (2-chlorophenyl)-thiourea
P027	3-Chloropropionitrile, 3-chloro-propanenitrile
P028	(chloromethyl)-Benzene, Benzyl chloride
P029	Copper cyanides
P030	Cyanides (soluble cyanide salts)
P031	Cyanogen
P033	Cyanogen chloride, Chlorine cyanide
P034	2-Cyclohexyl-4,6-dinitrophenol, 4,6-Dinitro-o-cyclohexylphenol
P036	Dichlorophenylarsine, Phenyl dichloroarsine
P037	Dieldrin, DIELDREX
P038	Diethylarsine
P039	0,0-Diethyl S-[2-(ethylthioethyl)] phosphorodithioate, Disulfoton
P040	0,0-Diethyl-O-pyrazinyl phosphorothioate, 0,0-diethyl-o-pyrazinyl ester, phosphorothioic acid
P041	0,o-Diethyl phosphoric acid, O-p-nitrophenyl ester, Diethyl-p-nitrophenyl phosphate, Phosphoric acid

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TABLE C-4 (continued)[a/]

EPA Hazardous Waste No.	Substance
P042	3,4-Dihydroxy-alpha-(methylamino)-methyl benzyl alcohol, 4-[1-hydroxy-2-(Methylamino)ethyl]-1,2-Benzenediol, Epinephrine
P043	Diisopropyl fluorophosphate, 1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro- 1,4,4a,5,8,8a-hexahydro endo, endo (see P060), bis(1-methylethyl)-ester, Phosphorofluoric acid
P044	Dimethoate, O,O-dimethyl-S-[2-(methylamino-)-2-oxyethyl]ester, Phosphorodithioic acid
P045	3,3-Dimethyl-1-(methylthio)-2-butanone, O-[(methylamino) carbonyl] oxime, Thiofanox
P046	Alpha, alpha-Dimethylphenthylamine, 1,1-dimethyl-2-phenyl-Ethanamine
P047	4,6 Dinitro-o-cresol and salts, 2,4-dinitro-6-methyl-phenol
P048	2,4-Dinitrophenol
P049	2,4-Dithiobiuret, Thiomidodicarbonic diamide
P050	Endosulfan, 1,4,5,6,7,7-hexachloro-5-Norborene-2,3-dimethanol, cyclic sulfite
P051	Endrin, Epinephrine (see P042)
P054	Ethylenimine, Aziridine
P056	Fluorine
P057	Fluoroacetamide
P058	Fluoroacetic acid, sodium salt
P059	Heptachlor, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-4,7-Methano-1H-indene
P060	1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo, endo-dimethanonaphthalene, Hexachloro hexahydro-exo,exo-dimethanonaphthalene

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TABLE C-4 (continued)[a/]

EPA Hazardous Waste No.	Substance
P062	Hexaethyl tetraphosphate, Tetraphosphoric acid, hexaethyl ester
P063	Hydrocyanic acid, Hydrogen cyanide
P064	Isocyanic acid, methyl ester, Methyl isocyanate
P065	Fulminic acid, mercury (II) salt, Mercury fulminate (R,T)
P066	Methomyl, Acetimidic acid, N-[(methylcarbamoyl)oxy]thiomethyl ester
P067	2-Methylaziridine, 1,2-Propylenimine
P068	Methyl hydrazine
P069	2-Methyllactonitrile, 2-hydroxy-2-methyl-propanenitrile
P070	2-Methyl-2-(methylthio)propionaldehyde-o-(methylcarbonyl) oxime, Aldicarb
P071	Methyl parathion, O,O-Dimethyl-O-p-nitrophenyl phosphorothioate
P072	1-Naphthyl-2-thiourea, alpha-Naphthylthiourea, 1-naphthalenyl-thiourea
P073	Nickel carbonyl, Nickel tetracarbonyl
P074	Nickel cyanide, Nickel (II) cyanide
P075	Nicotine and salts, (S)-3-(1-methyl-2-pyrrolidinyl)pyridine and salts
P076	Nitric oxide, Nitrogen (II) oxide
P077	p-Nitroaniline, 4-nitro-Benzeneamine
P078	Nitrogen dioxide, Nitrogen (IV) oxide
P081	Nitroglycerine, trinitrate-1,2,3-Propanetriol (R)

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TABLE C-4 (continued)a/

EPA Hazardous Waste No.	Substance
P082	N-Nitrosodimethylamine, Dimethylnitrosamine
P084	N-Nitrosomethylvinylamine, N-methyl-N-nitroso-Ethenamine
P085	Octamethyldiphosphoramide, Octamethylpyrophosphoramide
P087	Osmium oxide, Osmium tetroxide
P088	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid, Endothall
P089	Parathion, O,O-diethyl-O-(p-nitrophenyl)ester, Phosphorothioic acid
P092	Phenylmercuric acetate, (acetato-o)phenyl-mercury
P093	N-Phenylthiourea
P094	Phorate, O,O-diethyl-s-(ethylthio)methyl ester, Phosphorothioic acid
P095	Phosgene, Carbonyl chloride
P096	Phosphine, Hydrogen phosphide
P097	Phosphorothioic acid, O,O-dimethyl ester, O-ester with N,N-dimethyl benzene sulfonamide, Phosphorothioic acid O,O-dimethyl-O-(p-nitrophenyl) ester, Famphur
P098	Potassium cyanide
P099	Potassium silver cyanide
P101	Propanenitrile, Ethyl cyanide
P102	2-Propyn-1-ol, Propargyl alcohol
P103	Selenourea, Carbamimidoselenoic acid
P104	Silver cyanide
P105	Sodium azide, Sodium coumadin (see P001)

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TABLE C-4 (continued)a/

EPA Hazardous Waste No.	Substance
P106	Sodium cyanide
P107	Strontium sulfide
P108	Strychnine and salts, Strychnidin-10-one and salts
P109	Tetraethyldithiopyrophosphate, Dithiopyrophosphoric acid, tetraethyl ester
P110	Tetraethyl lead, tetraethyl plumbane
P111	Tetraethylpyrophosphate, Pyrophosphoric acid, tetraethyl ester
P112	Tetranitromethane (R)
P113	Thallic oxide, Thallium (III) oxide
P114	Thallium (I) selenite
P115	Thallium (I) sulfate, Sulfuric acid, thallium (I) salt
P116	Hydrazinecarbothioamide, Thiosemicarbazide, Thiosulfantionel
P118	Trichloromethanethiol
P119	Vanadic acid, ammonium salt, Ammonium vanadate
P120	Vanadium pentoxide, Vanadium (V) oxide
P121	Zinc cyanide
P122	Zinc phosphide (R,T)
P123	Toxaphene, octachloro-Camphene

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TABLE C-4 (continued)a/

EPA Hazardous Waste No.	Substance
U001	Acetaldehyde, Ethanal (I)
U002	Acetone, 2-Propanone (I)
U003	Acetonitrile, Ethanenitrile (I,T)
U004	Acetonphenone, 1-phenyl-ethanone
U005	2-Acetylaminoflourene, N-9H-fluoren-2-yl-acetamide
U006	Acetyl chloride, Ethanoyl chloride (C,R,T)
U007	Acrylamide, 2-Propenamide
U008	Acrylic acid, 2-Propenoic acid (I)
U009	Acrylonitrile, 2-Propenenitrile
U010	6-Amino-1,1a,2,8,8a,8b-hexahydro-8-(hydroxymethyl) 8-methoxy-5-methylcarbamate azirino (2,3,3,4) pyrrolo (1,2-a) indole-4, 7-dione (ester), Mitomycin C
U011	Amitrole, 1H-1,2,4-Triazol-3-amine
U012	Aniline, Benzeneamine (I,T)
U014	Auramine, 4,4'-carbonimidoylbis (N,N-dimethyl)-Benzeneamine
U015	Azaserine, L-Serine, diazoacetate (ester)
U016	Benz[c]acridine, 3,4-Benzacridine
U017	Benzal chloride, Dichloromethyl benzene
U018	Benz[a]anthracene, 1,2-Benzanthracene
U019	Benzene (I,T)
U020	Benzenesulfonic acid chloride, Benzenesulfonyl chloride (C,R)
U021	Benzidine, 1,1'-Biphenyl-4,4'-diamine
U022	Benzo[a]pyrene, 3,4-Benzopyrene
U023	Trichloromethylbenzene, Benzotrichloride (C,R,T)

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TABLE C-4 (continued)[a/]

EPA Hazardous Waste No.	Substance
U024	Bis(2-chloroethoxy) methane, Ethane, 1,1'-[methylenebis (oxy)] bis[2-chloro-]
U025	Bis(2-chloroethyl) ether, Dichloroethyl ether
U026	N,N-Bis(2-chloromethyl)-2-napthylamine, chlornaphazine
U027	Bis(2-chloroisopropyl) ether, 2,2'-oxybis[2-chloropropane]
U028	Bis(2-ethylhexyl) phthalate, 1,2-Benzenedicarboxylic acid [bis(2-ethylhexyl)]ester
U029	Bromomethane, Methyl Bromide
U030	4-Bromophenyl phenyl ether, 1-bromo-4-phenoxybenzene
U031	n-Butyl alcohol, 1-Butanol (I)
U032	Calcium chromate, Chromic acid, calcium salt
U033	Carbonyl fluoride, Carbon oxyfluoride (R,T)
U034	Chloral, Trichloroacetaldehyde
U035	Chlorambucil, Butanoic acid, 4-[Bis(2-chloroethyl)amino] benzene-
U036	Chlordane, technical, 1,2,4,5,6,7,8,8-octachloro-3a,4,7,7a-tetrahydro-4,7-Methanoindane
U037	Chlorobenzene
U038	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy, ethyl ester, Ethyl-4,4'-dichlorobenzilate
U039	4-chloro-m-cresol, 4-chloro-3-methyl-phenol
U041	1-Chloro-2,3-epoxypropane, Oxirane, 2-(chloromethyl)-
U042	2-Chloroethyl vinyl ether, 2-chloroethoxyethene
U043	Chloroethene, Vinyl chloride
U044	Chloroform

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TABLE C-4 (continued)[a/]

EPA Hazardous Waste No.	Substance
U045	Chloromethane, Trichloromethane, Methyl chloride (I,T)
U046	Chloromethyl methyl ether, Chloromethoxymethane
U047	2-Chloronaphthalene, beta-Chloronaphthalene
U048	2-Chlorophenol, o-Chlorophenol
U049	4-Chloro-o-toluidine, hydrochloride, 4-chloro-2-methyl-benzenamine
U050	Chrysene, 1,2-Benzphenanthrene
U051	Cresote
U052	Cresols, cresylic acid
U053	Crotonaldehyde, 2-Butenal
U055	Cumene (I)
U056	Cyclohexane, Hexahydrobenzene, (1-methylethyl)-benzene (I)
U057	Cyclohexanone (I)
U058	Cyclophosphamide
U059	Daunomycin
U060	DDD, Dichloro diphenyl dichloroethane
U061	DDT, Dichloro diphenyl trichloroethane
U062	Diallate, S-(2,3-Dichloroallyl)diisopropylthiocarbamate
U063	Dibenz[a,h]anthracene, 1,2:5,6-Dibenzoanthracene
U064	Dibenzo[a.i]pyrene 1,2:7,8-Dibenzopyrene
U066	1,2-Dibromo-3-chloropropane, 1,2-dibromo-3-chloro-propane
U067	1,2-Dibromoethane, Ethylene dibromide

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TABLE C-4 (continued)[a/]

EPA Hazardous Waste No.	Substance
U068	Dibromomethane, Methylene bromide
U069	Dibutyl phthalate, 1,2-Benzenedicarboxylic acid, dibutyl ester
U070	1,2-Dichlorobenzene, o-Dichlorobenzene
U071	1,3-Dichlorobenzene, m-Dichlorobenzene
U072	1,4-Dichlorobenzene, p-Dichlorobenzene
U073	3,3-Dichlorobenzidine, 3,3'-dichloro-(1,1'-Biphenyl)-4,4'-diamine
U074	1,4-Dichloro-2-butene (I,T)
U075	Dichlorodifluoromethane
U076	1,1-Dichloroethane, Ethylidene dichloride
U077	1,2-Dichloroethane, Ethylene dichloride
U078	1,1-Dichloroethene
U079	1,2-dichloroethylene, trans-1,2-dichloroethene
U080	Dichloromethane, Methylene chloride
U081	2,4-Dichlorophenol
U082	2,6-Dichlorophenol
U083	1,2-Dichloropropane, Propylene dichloride
U084	1,3-Dichloropropane
U085	1,2:3,4-Diepoxybutane, 2,2'-Bioxirane (I,T)
U086	1,2-Diethylhydrazine
U087	O,O-Diethyl-S-methyl dithiophosphate, ester of phosphorodithioic acid

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TABLE C-4 (continued)[a]

EPA Hazardous Waste No.	Substance
U088	Diethyl phthalate, 1,2-Benzenedicarboxylic acid, diethyl ester
U089	Diethylstilbestrol, 4,4'-Stilbenediol, alpha,alpha'-diethyl-
U090	Dihydrosafrole, 1,2-methylenedioxy-4-propylbenzene
U091	3,3'-Dimethoxybenzidine, 3,3'-dimethoxy-(1,1'-Biphenyl)-4,4'-diamine
U092	Dimethylamine, N-methyl-methanamine (I)
U093	Dimethylaminoazobenzene, N,N'-dimethyl-4-phenylazobenzenamine
U094	7,12-Dimethylbenz[a]anthracene
U095	3,3'-Dimethylbenzidine, 3,3'-dimethyl-(1,1'-Biphenyl)-4,4'-diamine
U096	alpha,alpha-Dimethylbenzylhydroperoxide, 1-methyl-1-phenylethyl-hydroperoxide (R)
U097	Dimethylcarbamoyl chloride
U098	1,1-Dimethylhydrazine
U099	1,2-Dimethylhydrazine
U101	2,4-Dimethylphenol
U102	Dimethyl phthalate, 1,2-Benzenedicarboxylic acid, dimethyl ester
U103	Dimethyl sulfate, Sulfuric acid, dimethyl ester
U105	2,4-Dinitrotoluene, 1-methyl-1,2,4-dinitrobenzene
U106	2,6-Dinitrotoluene, 1-methyl-2,6-dinitrobenzene
U107	Di-n-octyl phthalate, 1,2-Benzenedicarboxylic acid, di-n-octyl ester
U108	1,4-Dioxane, 1,4-Diethylene dioxide

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TABLE C-4 (continued)[a/]

EPA Hazardous Waste No.	Substance
U109	1,2-Diphenylhydrazine
U110	Dipropylamine, N-propyl-1-Propanamine (I)
U111	Di-N-propylnitrosamine, N-Nitroso-N-propylamine
U112	Ethyl acetate, acetic acid, ethyl ester (I)
U113	Ethyl acrylate 2-Propenoic acid, ethyl ester (I)
U114	Ethylenebisdithiocarbamate, 1,2-Ethanediylbiscarbamodithioic acid
U115	Ethylene oxide, Oxirane (I,T)
U116	Ethylene thiourea, 2-Imidazolidinethione
U117	Ethyl ether 1,1'-oxybisethane (I)
U118	Ethylmethacrylate, 2-Propenoic acid, 2-methyl-, ethyl ester
U119	Ethyl methanesulfonate Methanesulfonic acid, ethyl ester
U120	Fluoranthene, Benzo[j,k]fluorene
U121	Fluorotrichloromethane, Trichlorofluoromethane
U122	Formaldehyde, Methylene oxide
U123	Formic acid, Methanoic acid (C,T)
U124	Furan, Furfuran (I)
U125	Furfural, 2-Furancarboxaldehyde (I)
U126	Glycidylaldehyde, 2,3-epoxy-1-propanol
U127	Hexachlorobenzene
U128	Hexachlorobutadiene, 1,1,2,3,4,4-hexachloro-1,3-butadiene
U129	Hexachlorocyclohexane, Lindane

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TABLE C-4 (continued)[a/]

EPA Hazardous Waste No.	Substance
U130	Hexachlorocyclopentadiene, 1,3-Cyclopentadiene, 1,2,3,4,5,5-hexa-chloro-
U131	Hexachloroethane, 1,1,1,2,2,2-hexachloroethane
U132	Hexachlorophene, 2,2'-Methylenebis(3,4,6-trichlorophenol)
U133	Diamine, Hydrazine (R,T)
U134	Hydrofluoric acid, Hydrogen Fluoride (C,T)
U135	Hydrogen Sulfide, Sulfur hydride
U136	Hydroxydimethylarsine oxide, Cacodylic acid
U137	Indeno(1,2,3,-cd)pyrene, 1,10-(1,2-phenylene)pyrene
U138	Iodomethane, Methyliodide
U139	Iron dextran, Ferric dextran
U140	Isobutyl alcohol 2-Methyl-1-propanol (I,T)
U141	Isosafrole, 1,2-methylenedioxy-4-propenyl-benzene
U142	Kepone, Decachlorooctahydro-1,3,4-metheno-2H-cyclobuta[c,d]-pentalen-2-one
U143	Lasiocarpine
U144	Lead acetate, acetic acid, lead salt
U145	Lead phosphate, phosphoric acid, lead salt
U146	Lead subacetate
U147	Maleic anhydride, 2,5-Furandione
U148	Maleic hydrazide, 1,2-Dihydro-3,6-pyradizinedione
U149	Malononitrile, Propanedinitrile

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TABLE C-4 (continued)[a/]

EPA Hazardous Waste No.	Substance
U150	Melphalan, 3-[p-bis(2-chloroethyl)amino]phenyl-L-alanine
U151	Mercury
U152	Methacrylonitrile 2-Propenenitrile, 2-methyl-(I,T)
U153	Methanethiol, Thiomethanol (I,T)
U154	Methanol, Methyl alcohol (I)
U155	Methapyrilene, Pyridine, 2-[(2-dimethylamino)-2-thenylamino]-
U156	Methyl chlorocarbonate, Carbonochloridic acid, Methyl ester (I,T)
U157	3-Methylcholanthrene 1,2-dihydro-3-methyl-Benz[j]aceanthrylene
U158	4,4-Methylene-bis-(2-chloroaniline), 4,4'-methylenebis(2-chlorobenzenamine)
U159	Methyl ethyl ketone (MEK), 2-Butanone (I,T)
U160	2-Butanone peroxide, Methyl ethyl ketone peroxide (R,T)
U161	Methyl isobutyl ketone, 4-methyl-2-pentanone (I)
U162	Methyl methacrylate, 2-Propenoic acid, 2-methyl-, methyl ester (I,T)
U163	N-Methyl-N-nitro-N-nitrosoguanidine
U164	Methylthiouracil, 4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo
U165	Naphthalene
U166	1,4-Naphthaquinone, 1,4-Naphthalene dione
U167	1-Naphthylamine, alpha-Naphthylamine
U168	2-Naphthylamine, beta-Naphthylamine

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TABLE C-4 (continued)[a/]

EPA Hazardous Waste No.	Substance
U169	Nitrobenzene (I,T)
U170	4-Nitrophenol, p-Nitrophenol
U171	2-Nitropropane (I,T)
U172	N-Nitrosodi-n-butylamine, N-butyl-N-nitroso-1-Butanamine
U173	N-Nitrosodiethanolamine, 2,2'-(nitrosoimino)bis-ethanol
U174	N-Nitrosodiethylamine, Ethanamine, N-ethyl-N-nitroso-
U176	N-Nitroso-N-ethylurea, Carbamide, N-ethyl-N-nitroso
U177	N-nitro-N-methylurea, Carbamide, N-methyl-N-nitroso
U178	N-Nitroso-N-methylurethane, Carbamic acid, methylnitroso-ethyl ester
U179	N-Nitrosopiperidine, Pyridine, hexahydro-N-nitroso-
U180	N-Nitrosopyrrolidine, Pyrrole, tetrahydro-N-nitroso-
U181	5-Nitro-o-toluidine, 2-methyl-5-nitrobenzenamine
U182	Paraldehyde, 1,3,5-Trioxane, 2,4,5-trimethyl-
U183	Pentachlorobenzene
U184	Pentachloroethane
U185	Pentachloronitrobenzene
U186	1,3-Pentadiene, 1-Methylbutadiene (I)
U187	Phenacetin, N-(4-ethoxyphenyl)-acetamide
U188	Phenol, Hydroxybenzene
U189	Phosphorous Sulfide, Sulfur Phosphide (R)
U190	Phthalic anhydride, 1,2-Benzenedicarboxylic acid anhydride

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TABLE C-4 (continued)[a]

EPA Hazardous Waste No.	Substance
U191	2-Picoline, Pyridine, 2-methyl-
U192	Pronamide, 3,5-Dichloro-N-(1,1-dimethyl-2-propynyl)benzamide
U193	1,3-Propane sultone, 1,2-Oxathiolane, 2,2-dioxide
U194	n-Propylamine, 1-Propanamine (I,T)
U196	Pyridine
U197	p-Benzoquinone, 1,4-Cyclohexadienedione
U200	Reserpine, Yohimban-16-carboxylic, 11,17-dimethoxy-18-[3,4,5-trimethoxy-benzoyl)oxy]
U201	Resorcinol, 1,3-Benzenediol
U202	Saccharine and salts, 1,2-Benzisothiazolin-3-one, 1,1-dioxide
U203	Safrole, 1,2-methylenedioxy-4-allyl-benzene
U204	Selenious acid, Selenium dioxide
U205	Selenium disulfide, Sulfur selenide (R,T)
U206	Streptozotocin, 2,4,5-T (see F027), D-Glucopyranose, 2-deoxy-2 (3-methyl-3-nitrosoureido)-
U207	1,2,4,5-Tetrachlorobenzene
U208	1,1,1,2-Tetrachloroethane
U209	1,1,2,2-Tetrachloroethane
U210	Tetrachloroethylene, 1,1,2,2-tetrachloroethene
U211	Tetrachloromethane, Carbon tetrachloride
U213	Tetrahydrofuran (I)
U214	Thallium (I) acetate, acetic acid, thallium (I) salt

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TABLE C-4 (continued)[a/]

EPA Hazardous Waste No.	Substance
U215	Thallium (I) carbonate, carbonic acid, dithallium (I) salt
U216	Thallium (I) chloride
U217	Thallium (I) nitrate
U218	Thioacetamide, Ethanethioamide
U219	Thiourea, Thiocarbamide
U220	Toluene, Methylbenzene
U221	Toluenediamine, Diaminotoluene
U222	o-Toluidine hydrochloride, 2-methylbenzenamine hydrochoride
U223	Benzene,1,3-diisocyanatomethyl-, Toluene diisocyanate (R,T)
U225	Tribromomethane, Bromoform
U226	1,1,1-Trichloroethane, Methylchloroform
U227	1,1,2-Trichloroethane
U228	Trichloroethene, Trichloroethylene
U234	1,3,5-Trinitrobenzene, sym-Trinitrobenzene (R,T)
U235	Tris(2,3-dibromopropyl) phosphate, 1-propanol, 2,3-dibromo-, phosphate (3:1)
U236	Trypan blue
U237	Uracil mustard, Uracil, 5 [bis(2-chloromethyl)amino]-
U238	ethyl carbamate (urethane), Carbamic acid, ethyl ester
U239	Xylene, Dimethylbenzene (I,T)
U240	2,4-D, salt and esters
U243	Hexachloropropene

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TABLE C-4 (continued)[a]

EPA Hazardous Waste No.	Substance
U244	Thiram, Bis(dimethylthiocarbamoyl)disulfide
U246	Bromine cyanide, Cyanogen bromide
U247	Methoxychlor, Ethane, 1,1,1-trichloro-2,2-bis(p-methoxyphenyl)
U248	Warfarin, 3-(alpha-Acetonylbenzyl)-4-hydroxycoumarin and salts when present at concentrations of 0.3% or less
U249	Zinc phosphide, when present at concentrations of 10% or less
U328	2-Amino-1-methylbenzene, o-Toluidine
U353	4-Amino-1-methylbenzene, p-Toluidine
U359	2-Ethoxyethanol, Ethylene glycol monoethyl ether

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ATTACHMENT B
PROCESS FLOW DIAGRAMS

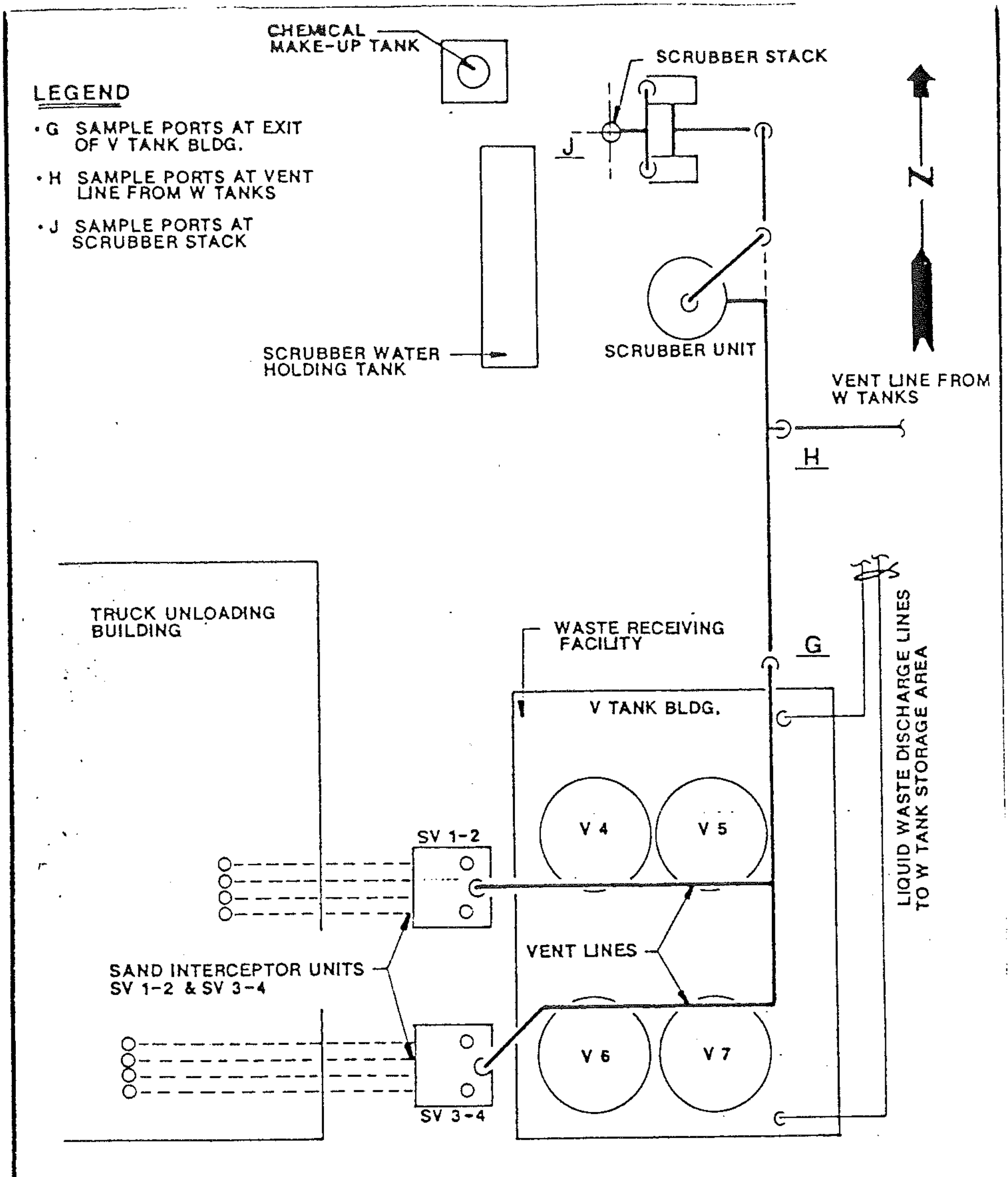


FIGURE 3.1

NUS CORPORATION

AIR SAMPLING AT SAND INTERCEPTORS, V-TANK BUILDING AND CAUSTIC SCRUBBER

CWM VICKERY FACILITY
VICKERY, OHIO

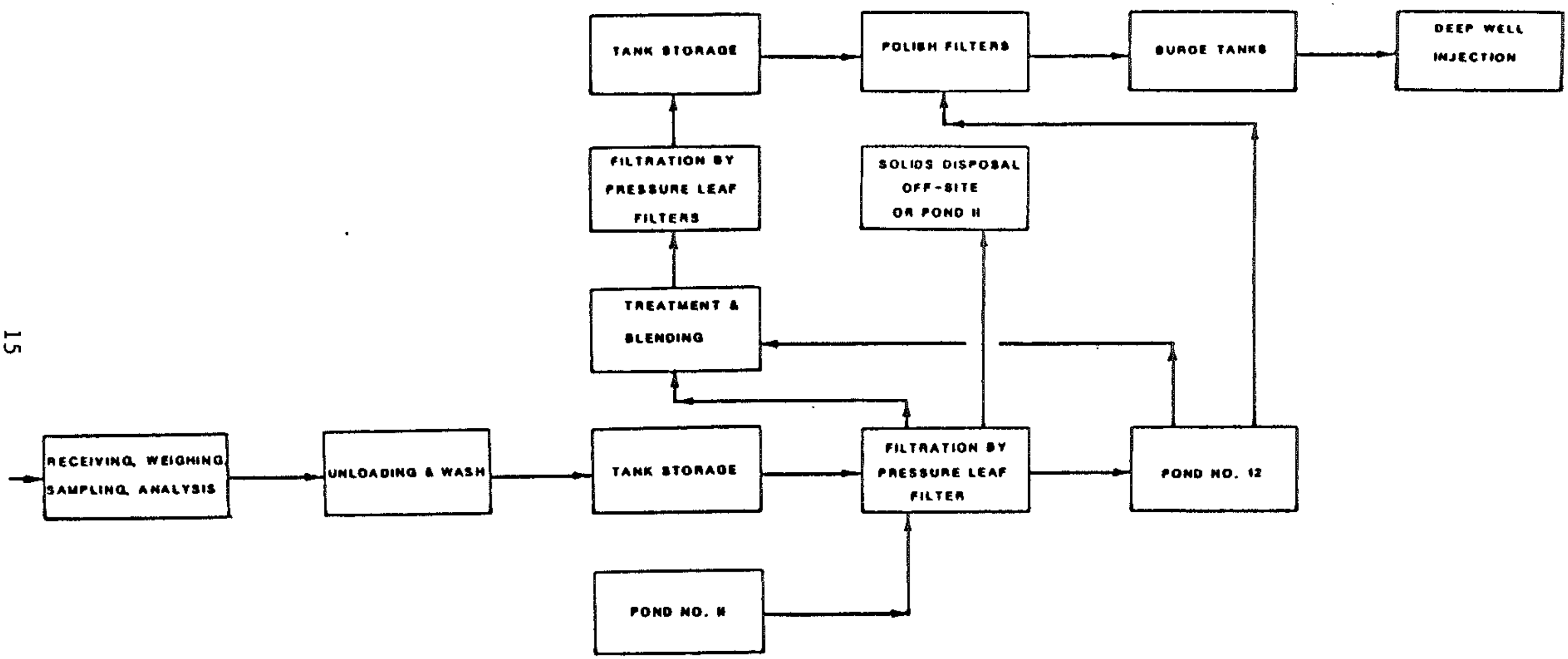


FIG. 2 VICKERY FACILITY-CURRENT CONFIGURATION

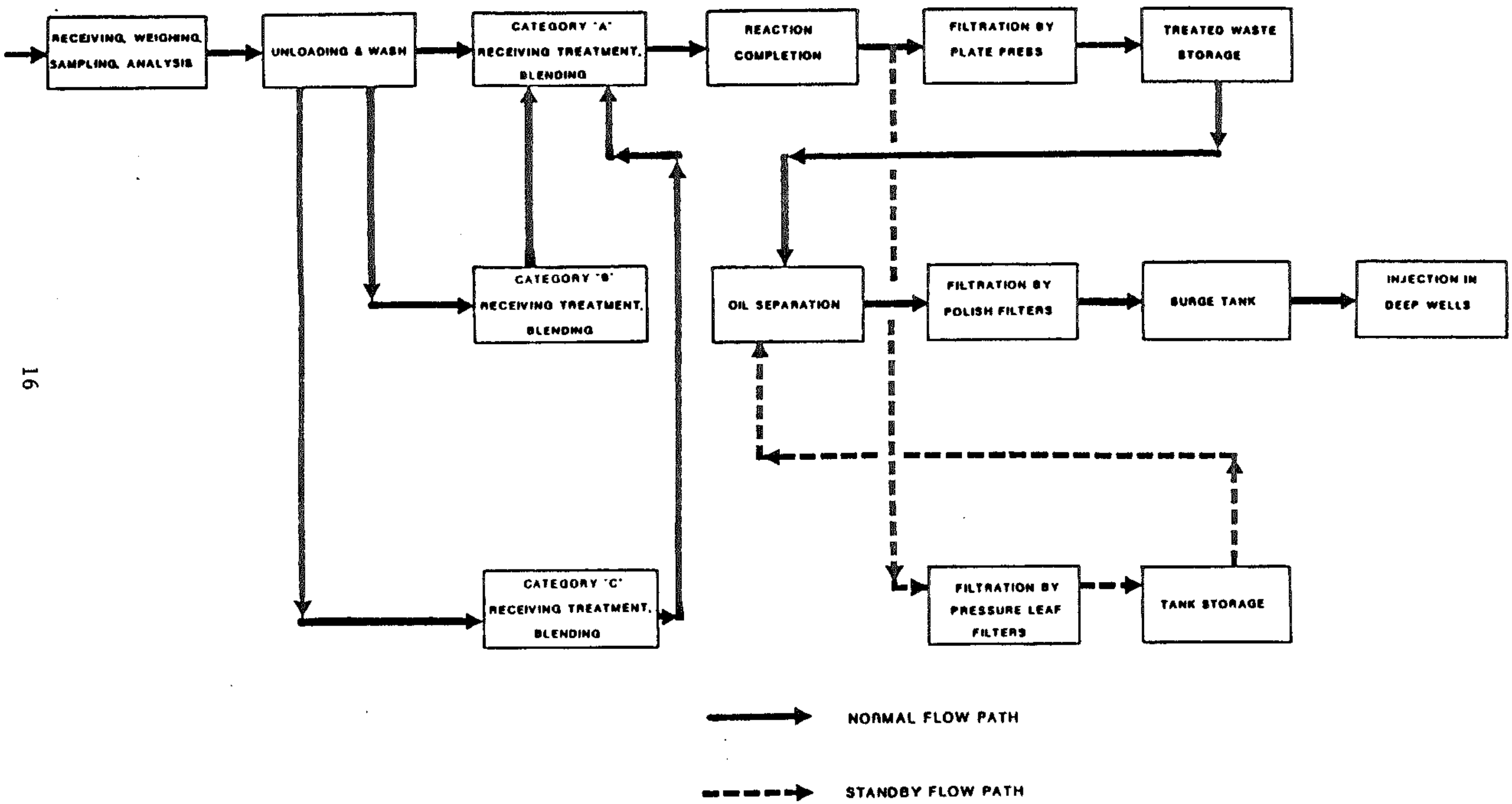
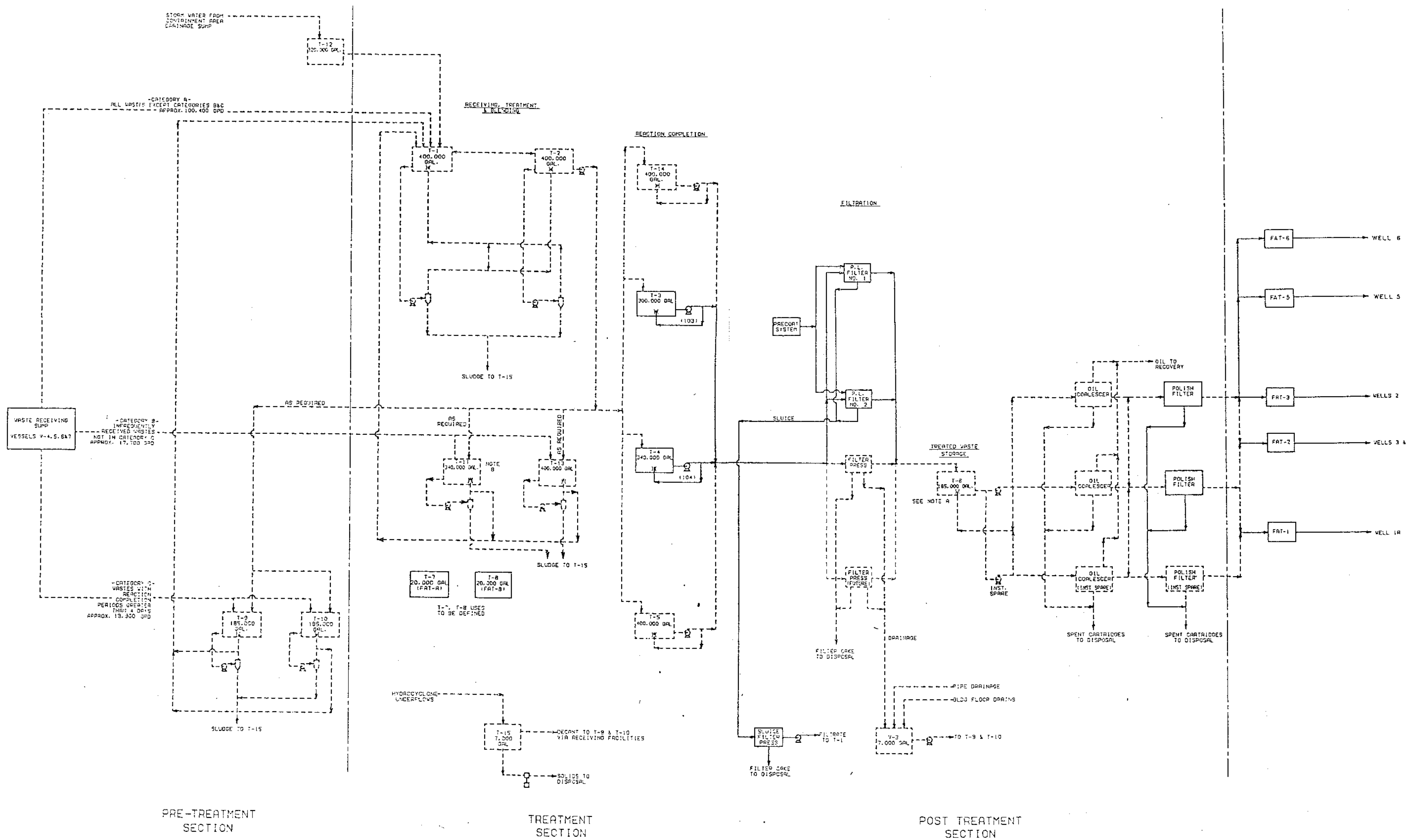
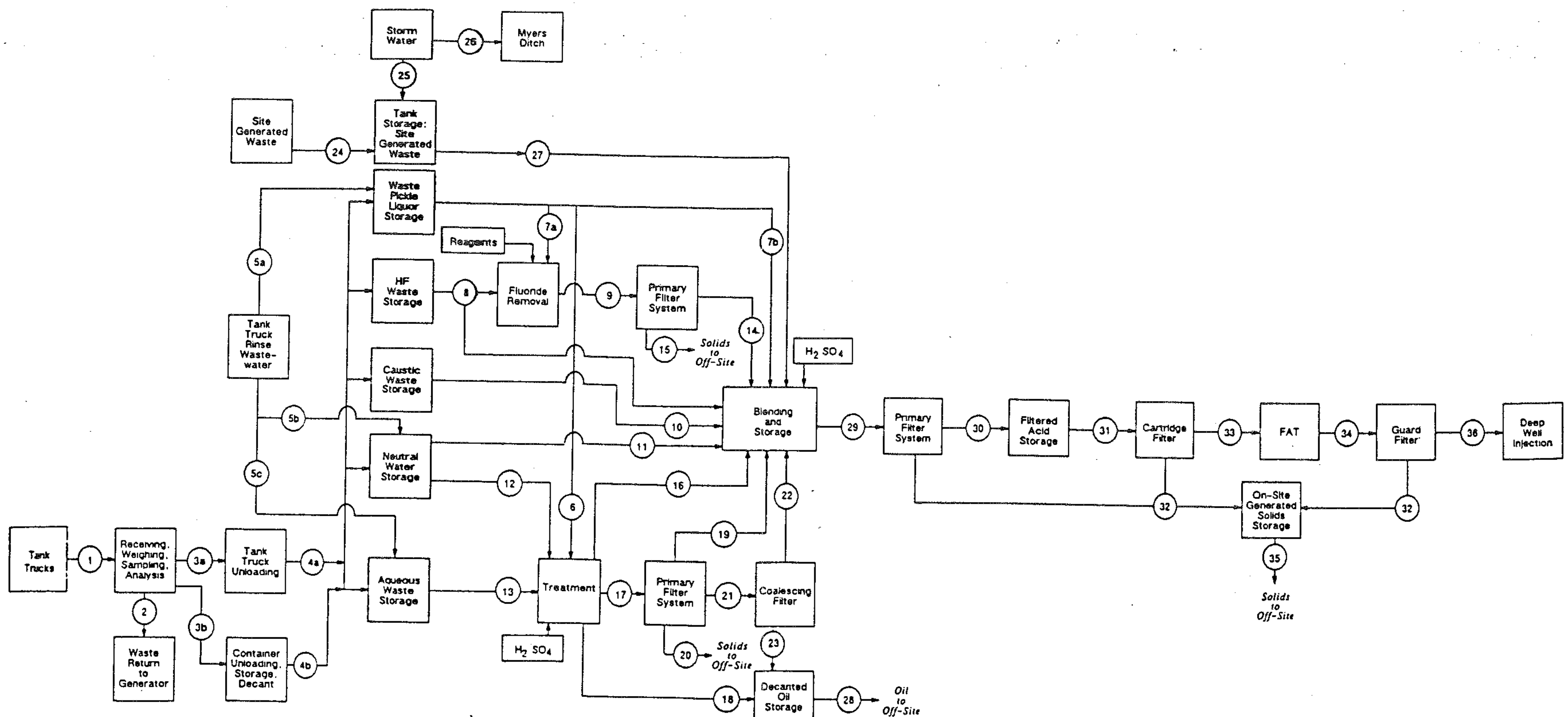


FIG. 3 VICKERY FACILITY–FUTURE CONFIGURATION


STORM WATER FROM CONTAINMENT AREA DRAINAGE SUMP
T-12
-CATEGORY A-
ALL WASTES EXCEPT CATEGORIES B&C
APPROX. 100,400 GPD
RECEIVING, TREATMENT & BLENDING
REACTION COMPLETION
FILTRATION
T-1 400,000 GAL.
T-2 400,000 GAL.
T-14 400,000 GAL.
T-3 300,000 GAL
T-4 340,000 GAL
T-5 400,000 GAL
SLUDGE TO T-15
WASTE RECEIVING SUMP
VESSELS V-4,5,6&7
-CATEGORY B-
INFREQUENTLY RECEIVED WASTES NOT IN CATEGORY C
APPROX. 17,700 GPD
AS REQUIRED
T-11 340,000 GAL
NOTE B
T-13 400,000 GAL
T-7 20,000 GAL (FAT-A)
T-8 20,000 GAL (FAT-B)
T-7, T-8 USES TO BE DEFINED
-CATEGORY C-
WASTES WITH REACTION COMPLETION PERIODS GREATER THAN 4 DAYS
APPROX. 13,300 GPD
T-9 185,000 GAL.
T-10 185,000 GAL.
HYDROCYCLONE UNDERFLOWS
T-15 7,300 GAL
DECANT TO T-9 & T-10 VIA RECEIVING FACILITIES
SOLIDS TO DISPOSAL
PRECOAT SYSTEM
P.L. FILTER NO. 1
P.L. FILTER NO. 2
SLUICE
FILTER PRESS
FILTER PRESS (FUTURE)
FILTER CAKE TO DISPOSAL
DRAINAGE
SLUICE FILTER PRESS
FILTRATE TO T-1
PIPE DRAINAGE
BLDG FLOOR DRAINS
V-3 7,000 GAL
TO T-9 & T-10
TREATED WASTE STORAGE
T-6 85,000 GAL
SEE NOTE A
INST. SPARE
OIL COALESCER
OIL COALESCER (INST SPARE)
OIL TO RECOVERY
POLISH FILTER
POLISH FILTER (INST SPARE)
SPENT CARTRIDGES TO DISPOSAL
FAT-6
FAT-5
FAT-3
FAT-2
FAT-1
WELL 6
WELL 5
WELLS 2
WELLS 3 & 4
WELL 1A
PRE-TREATMENT SECTION
TREATMENT SECTION
POST TREATMENT SECTION



FLOW PATH	MATERIALS
1	All Wastes
2	Rejected Wastes Returned to Generator
3a	Bulk Wastes
3b	Containerized Wastes
4a	Tank Truck Unloading/Storage: Bulk Wastes
4b	Decanted Wastes (Non-HF Wastes)
5a	Truck Rinsewater to Waste Pickle Liquor Storage
5b	Truck Rinsewater to Neutral Water Storage
5c	Truck Rinsewater to Aqueous Waste Storage
6	Waste Pickle Liquor
7a	Waste Pickle Liquor
7b	Waste Pickle Liquor
8	HF Waste
9	Treated HF Waste
10	Caustic Waste

FLOW PATH	MATERIALS
11	Neutral Water
12	Neutral Water
13	Aqueous Waste
14	Filtered Treated HF Waste
15	On-site Generated Solids Storage
16	Treated Waste - Waste Pickle Liquor, Neutral Water, Aqueous Waste
17	Treated Waste - Waste Pickle Liquor, Neutral Water, Aqueous Waste
18	Treated Waste - Waste Pickle Liquor, Neutral Water, Aqueous Waste
19	Filtered Treated Waste - Waste Pickle Liquor, Neutral Water, Aqueous Waste
20	On-site Generated Solids Storage
21	Filtered Treated Waste - Waste Pickle Liquor, Neutral Water, Aqueous Waste

FLOW PATH	MATERIALS
22	Filtered Treated Waste
23	Decanted Oil
24	Site Generated Contaminated Waste
25	Stormwater Requiring Treatment
26	Non-Contaminated Stormwater
27	Site Generated Contaminated Waste
28	Oil Removed to Off-Site
29	Treated and Blended Waste
30	Filtered Treated and Blended Waste
31	Filtered Treated Waste
32	On-site Generated Solids Storage
33	Filtered Treated Waste
34	Filtered Treated Waste
35	Solids Disposal Off-Site
36	Filtered Treated Waste

NO.	DATE	CHK'D	REVISION
3			
2			
1			
ORIG.			

SCALE: APPROVED BY: DRAWN BY:

DATE: CHECKED BY:

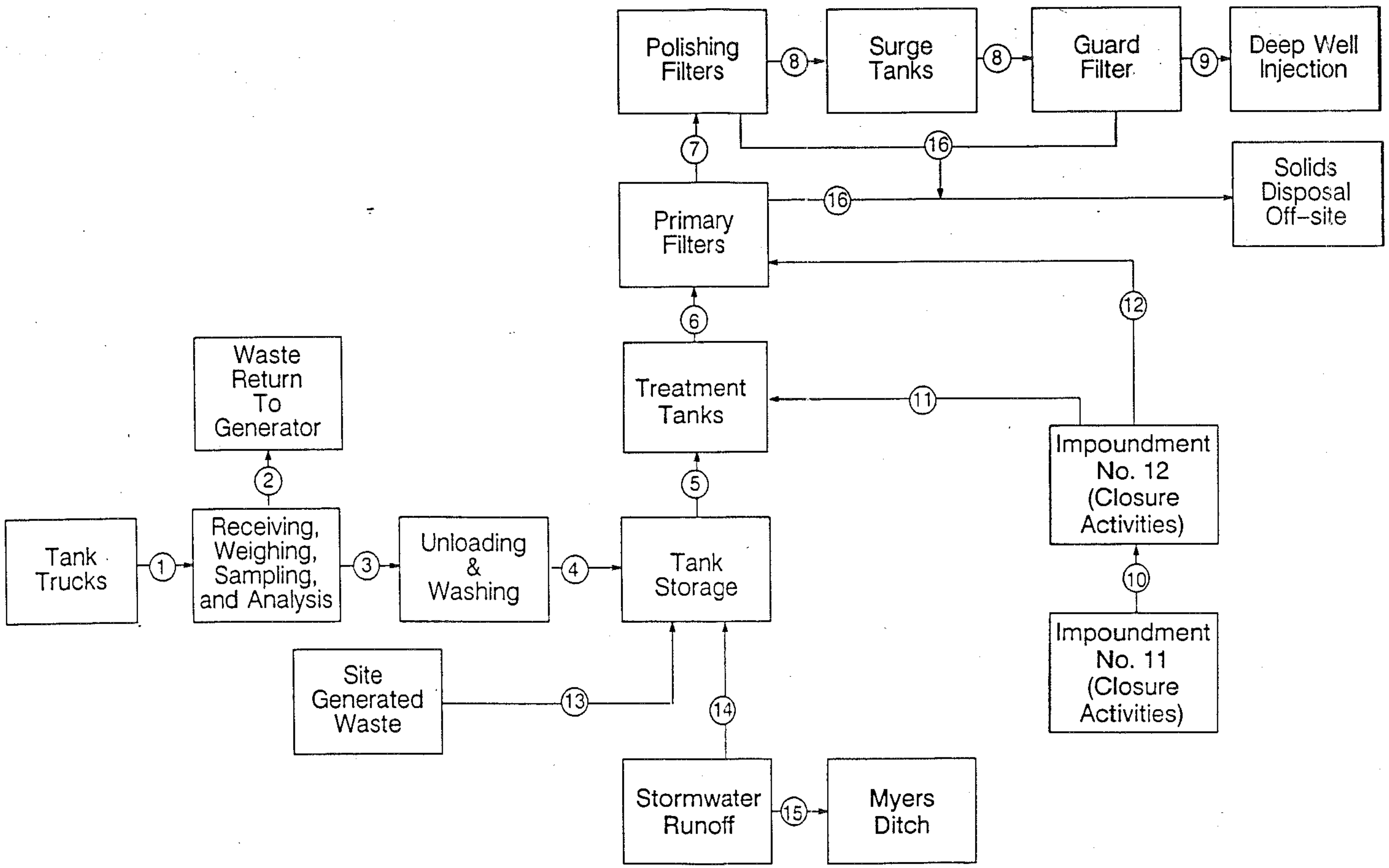
CWM VICKERY PROPOSED TREATMENT AND DISPOSAL SYSTEM - OPERATIONS FLOW SHEET

ICF TECHNOLOGY INCORPORATED

Chemical Waste Management, Inc.
Oak Brook, Illinois 60521

SHEET NUMBER

DRAWING NUMBER
FIG. B - 6



FLOW PATH	MATERIALS
1	All Bulk Liquid Waste
2	Rejected Waste, Returned To Generator
3	All Waste
4	All Waste
5	All Waste
6	Treated Waste
7	Filtered Treated Waste
8	Filtered Treated Waste

FLOW PATH	MATERIALS
9	Final Filtered Waste
10	Impoundment II Waste Inventory
11	Impoundment Inventory
12	Impoundment Inventory
13	Site Generated Contaminated Waste
14	Stormwater Requiring Treatment
15	Non-Contaminated Stormwater
16	Solids Disposal Off-Site

NO.	DATE	CHK'D	REVISION
3			
2			
1			
ORIG.			

SCALE: APPROVED BY: DRAWN BY:
DATE: CHECKED BY:

CWM VICKERY EXISTING TREATMENT AND DISPOSAL SYSTEM - OPERATIONS FLOWSHEET

ICF TECHNOLOGY INCORPORATED

Chemical Waste Management, Inc.
Oak Brook, Illinois 60521

SHEET NUMBER

DRAWING NUMBER
FIG. B - 5

ATTACHMENT C
VISUAL SITE INSPECTION FIELD NOTES

5/8/90 1

0845 Jacobs personnel, Lou Ehrhard and Ed Grove arrive at CWM-Vickery facility and check in at office

0955 Meet with CWM and OEPA personnel:

Steve Lonneman, CWM
Fred Nicar, CWM
Tom Frazer, CWM
Sue Murphy, CWM
Kim McGuire, CWM
Dave Ferguson, OEPA

Lou Ehrhard states the purpose of the RSI at the facility. Required for the permit to determine releases, or potential releases, at SWMUs. Stated that we would be looking at all present and past SWMUs and will take pictures of the SWMUs.

Steve Lonneman requested copies of the photos taken.

Lou Ehrhard said he would have to get permission from Jerry Lenssen.

Lou Ehrhard also stated that we would like to talk with staff members who have worked at

the facility a long time and who may have information on past SWMUs and waste handling practices.

Steve said they would get some people together who may be helpful.

0905 Slide show describing CWM-V's current operations

0930 Discussion:

- CWM-V property consists of 517 acres, incl agricultural.
- Facility first operated as Don's Waste Oil in early 60's

- Ohio Liquid Disposal
  Purchased operation in 1967
- CWM bought facility
  in 1978.

- Hazardous waste is injected
  approx. 3000 ft beneath surface.
- Wastes are primarily acids
  w/ dissolved metals and manufacturing
  "by-products"
- Wastes are unloaded
  from tankers, blended
  and filtered using:
  1) a filter press
  2) polish filters for
  < 5 μm (before injection)
- Wastes are transferred
  in above ground piping with
  detection pots. Double piped.

- 39 Monitoring wells and
  ~~two~~ 3 streams are routinely sampled.
- Filter press uses diatomaceous
  earth which is disposed of at
  HW Landfill (Adams Center Landfill)
- Wastes currently accepted
  at CWM-V:
  - Pickle liquors
  - Plating Baths
  - Metal Finishing
  - Leachate
  - F-Solvent scrubber waters (<1%)
  - Anodizing wastes and
    Caustics (occasionally)
- No virgin acid is
  used.
- Wastes are blended for homogeneous
  composition over time (pH < 1.0)
- HF and HNO_3 blended.

- CWM-V received approval from U.S. EPA for placement of Waste Pile in Closure Cell on Nov 7, 1988.
- Nov 8, 1988 LDR regulations prohibited this, however.

- CWM-V's anticipated facility will have closed system of Tanks and injection wells.
- No Migration Petition has been filed for Parts 268 and 148 requirements
- An additional Drum/Truck unloading facility may be added.
- Sulfuric acid in injected wastes reacts with dolomite to form Gypsum confining layer.
- Weston's Seismic Study

concluded that there are no major structural problems in the area.

Previous SWMUs

- Ponds 4, 5, 7 should have been closed
- Tanks W-3, 4, 5, and 7 are currently being closed based on OEPA approval. Originally OEPA approved/lost authority/U.S. EPA did not act/OEPA regained authority and approved.
- Clay from Borrow Pits used for Pond dikes.

Data - 1986-88 data showed "spurious laboratory-induced contamination".

I. Wells 2, 4, 5, 6 - active

I. Wells 1, 1a, 3 - plugged

- OEPA has CWM-V in detection

monitoring. USEPA has CWM-V in
assessment monitoring.
- Surface Water Mgmt
  - Anything in SWMUs is injected
  - Otherwise to Meyer Ditch
    or Expressway Ditch thru gates.
  - No analyses of Streams.
  - Sanitary Wastewater is injected.
- NPDES ended May 10, 1987, Ohio UIC
  program then took effect

OLD Facility - lagoons of waste
oil for recovery. Added acids
to crack. Oil recovered, acids
injected. FATB A&B for filter
Press, FAT used for brine storage.
Sluice Pit used to clean leaf filters.
No info on Cyanide Reactor Tank explosion
Pug Mill is mobile unit, decommed
No info on Landfarms or Solid Waste
Landfill.
1045 Health & Safety Meeting

1130 Lunch - left facility
1300 Return from lunch got gear together for VSI.
1325 (1,2-photos) Lab Tank UST - For everything except - F-solvents codes.
Poly tanks closed top
Volume ?
2.5 weeks pumped out
for deep well injection
with alarm for level.
1330 (3 photo) Scrubber Bay discontinued
4-5 Mos ago.
Sumps lead nowhere.
1340 (4 photo) Maintenance Tanks to drain
pipes during maintenance. Poly
tank in concrete vault.
Vol ?
approx. 2 dozen on site
Photo w/ pipe.

1345 Odor of acids. Steve
Said it is coming from
SI # R12.

1350 Truck unloading Bay
Gravity fed - to install pumps
soon.
Bermed. Sumps drain to
Sand/gravity interceptors

1355 Gravity interceptors.
lined Metal tanks
Vol. ? Bermed

1400 V-Tanks Four V-Tanks
Surge tanks - Don't meet
MTR, inspected once a year

Interceptor / V-Tanks North
gets different waste code
than South (F-Wastes in one)

to minimize filtered solids
disposal costs. Sometimes
flushed w/water so that
wastes are not mixed.
V-Tank Sump - Don't know
where it goes. (SE corner).
(and NE corner).
Air is vented to the scrubber

1410 Sumps to V-6 to T-1
in Control room falling to
controller (Rick).
Flush lines at ground level
used to flush lines.
External wash water goes
to Cone tank - used for
internal wash. Internal wash
goes to V-Tank.
V-Tanks are 6,300 gals
Sand interceptor 750 gals
Cleaned every 3-6 mos.

Sand interceptors are stainless
Steel coated w/ resin.

1420 Truck Washing Facility
Conc tanks - 2.

1421 Scrubber for Caustics
Emission of NOx during
mix of HF/Nitric. Reaction
occurred in T-Tanks.
Concrete Secondary Containment.

1425 Drum Accumulation Pad.
- stores filters rolloff boxes
of filtered materials.
- Sump is deadend concrete
poured w/ slab.
Approx 28 X 50 feet.

1433 Two Maintenance Tanks
near Scrubber

1434 Transfer pipe to T-Tanks

1440 T-Tanks - 6 tank currently
1 for F-Solvents T-2
1 for Nitrate T-9
1 for General ~~T-2~~ T-1
1 for Blending T-6, T-10 (occas.)
Secondary Containment
4 - 200000 gal, 2 - 100,000 gal?
Sumps in SE, SW, NW corners
Sump water goes to T-2.

1450 Old Tank farm photo
Removing NE tank (last one)

1451 New T-Tank Farm photo
Waste acids go from T-1, 2, 9
to FATA which feed leaf
or filter press.

1455 Filter Press & Polish Filters
Polish 5 μm and 0.5 μm filters 1459
- A and B sets, goes through either or.
- also an extra filter at end not currently in use.
- bermed inside building.
1500 photo for Filter Press.
1502 photo for T-Tanks (#17)
- Sumps for Filter Building 2 is pumped out and discharged by truck to V-Tanks.

1505 Sluice Pit used to Clean leaf filter.
Not currently in use.
Small building just ~~[illegible]~~ off between Filter Buildings #1 & #2.

Filter Building #1 - Leaf Filters
2 - Filters
1 - Premix Tank
1 - Admix tank
- both of these are in Part B and have had HW although not regularly
- Bermed inside building.
- Precoat tank mixes diatomaceous earth, admix circulates through presses to apply material to filters

1514 photos # 19 & 20 (filters)
(mix tanks)

1515 FAT A Tank
waste T-Tank to FAT A to Filter Press/Leaf Filter to T-Tank to polish to FAT B to well FAT Tanks.

Secondary Containment
around FAT-A, B, & C
- FATC not currently in use - used for brine.
Never permitted.
- Fiberglass reinforced.

1523 Photo inside pumphouse of T-Tanks.

1600 Take van out to wells.
FAT-3 feeds well-2 and FAB-5 and 6
New FAT Tanks will be installed eventually
Pumphouse 3 pumps for well 2
- 2 polish filters - 5 µm
only one in use at one time
- Sump pumped to tanker truck
- bermed
- Satellite down for filter material.
- Piston Pump.

Last photo inside pumphouse

1614 FAT-1 (?) / Pumphouse 1 photo
1 polish filter
1 centrifugal Pump

1617 Pumphouse 1 photo
Pressurized from pumphouse to well, 2nd containment.
Detection port detects liquid, gravity feeds
2nd containment open to air (vented).

1630 FAT-5, PH-5, well 5
Water level (rust line) in 2nd containment FAB-5.
Pumped by tanker truck.
Level indicator (alarm) at same level. (Photo)

Pumphouse w/
- Piston Pump
- 2 Polish filters

1640 "Hay mill area"
- 5 silo/tank foundations approx 50 feet across (diam)
- Pugmill in area
- Old and New equip Storage

1641 Pugmill photo
"PCB" marked on one
- 8 units on concrete foundation

1643 - Shovel and aerator photo
1645 - Borrow Pit
- As far as Steve knows no HW in pit.

1650 No known contamination of Meyers Ditch. Some

chlorides, copper but no increase downstream from upstream.

1651 ~~photo~~ Borrow pit west of Pond A
Rubble at Northend of pit.

1655 Pumphouse 2 / well 4
FAT-2(?)yes - No longer in use
- Concrete w/ fiberglass containment
- Operation history unknown
- low pressure feed through pipeline to well 4.

1700 Pumphouse 2
- 1 polish filter
- 1 piston pump

1705 Only 4 wells currently in use at facility.
Go back to office.

1715 Sign out of facility

20

1650 Signed Outoy Facility,

5/8/90

21

5/8/90

0800 Arrived at Chem Waste - Vickery
0815 Checked in at Office
Met w/ Steve Lonneman, Mike Curry, Sue Murphy.
Mike has been here since 1984
East Landfarm was dug up and filled with clean clay.
- New Maintenance tanks are polyethylene above grade.
- Old Maintenance tanks are below grade polyethylene tanks
- Sluice Pits to back wash leaf filters.
- Stopped using Sluice Pits in 1986. No sluicing needed now. Modified leaf filters
- 1st Deepwell in 1975. Sluice Pit and Leaf filter at same time

Filter Bldg 2 used to be Pumphouse 1. Filter Press built in 1986.
- Well 1 went bad, put in well 1a near pumphouse 1.
- PH-1 served wells 1 & 2.
- PH-2 served wells 3 & 4
- PH-3 served wells 5 & 6
- Well 1a abandoned in 1985
- PH-5 built for well 5
- PH-1 feeds well 6
- PH-3 feeds well 2
- PH-4 served well 4
Filter Bldg 1 - bermed in 1987 used to drain to Sluice Pit.
Filter Bldg 2 (Pumphouse 1) drained to Sluice Pit iron pipe was disintegrated. Replaced

foundation when Filter Press
installed.
FAT-C stored brine no HW
since 1984 at least.
FAT-6 is same as FAT-1
FAT-5 started summer 1985
2nd containment
FAT-5 containment built in 1985
at same time.
FAT-1 built 1985
FAT-3 built in 1984
FAT-2 built in 1984
FAT-2 new location built 1986
FATS A&B contain built in 1984

HAY Mill - 4 Silos and foundations
taken from 1984 Barn taken
down in 1984, silos already down.

Oil Reclamation Facility taken
down in 1985, Earth berm.
PCBs here. Excavated
to 3 feet. Most contamination
at South side. All dirt
soil steel went to stock
pile.
- W-Tanks earthen dikes
W-Tanks installed pre-1975.

- Underground Sump Tank at
pumphouse 3 broke/release
when tank was removed.
- Tank at NW corner of Pond 7
taken out in 1985. Not
sure what it was used for.
- Skim Oil tanks no info must
have been removed in 1985
to Waste Pile.

Old Truck Wash South end of Ponds 5/7. Emptied to Ponds.
- Drum Storage Area near Pond 6 - Jerry believes it was a Part A - never closed.
- Pumphouse 7/11 foundation in waste pile building reused.
- Eastern landfarm only North part was actually used.
- No info on South landfarm
- Train tracks w/ siding
  Wastes hauled in on sidings.
- Abandoned late-70s/early-80s
- FAT A and B Protector seal coating on 2nd containment
- New tanks have sealcoat coating
- Others have epoxy

- Transfer Piping except to line to well 4
- Fiberglass - cement welded automatic pressure shutoff secondary cont. stands.
- All low pressure
- High pressure - internal Fiberglass, external PVC. w/ extension pots.
- Well 4 to be closed next year.

Jerry Lenssen showed up at about 0845 and Jeff Steers showed up at 0925

- West Borrow pit from clay used in Ponds 11&12. Mike says they may have tried to fill in at one time.
- Pond 11 riprap slope failure
- Pond 11/12 South end dike

Slippage. Used E. Borrow
Pit clay to repair dikes.
No info on Cyanide Reactor.

0940 Site Tour of OLD Facility
Depression at SE facility
Water-logged. Mike knows
nothing of any activity here

0945 Retention Pond
Black Oily water w/
debris, stressed vegetation
Pond is drained to T-Tanks
Since Nov 1988 by pump
One person inspects level
every day to check freeboard.
Pumped when necessary.
In winter they pump as
long as possible 35-40,000 gal

~ 2.3 million gallon in 1990 so far

Gate, left open - release
- used as "normal" gate
during construction.
- Feb/March 1986 gate open
- Someone opened gate
- Corrugate steel to ditch
- Sealed in 1986 March/April.
- Removed soil/sediment/veg
taken to a landfill 79,000 gal.
water released.
- Data of water, sed, creek
came up clean.

959 - Photo 11 - Retention Pond
w/ gate

1000 Photo 12 - Retention Pond w/ pump
- Rubble from Pond & fill
old prison demolition
- Oil Red facility metal.

1005 Waste Pile photo
- Leachate purple/brown from waste pile
Pools/moisture all around the pile
- Retention Pond pumps 1/10 inch in one day.
- Polyethylene cover w/ HP net cover.
- lost cover (major) about 3 times, numerous small rips

1014 Decon Pad for closure photo
- used for deconning heavy equipment
- Concrete unbermed.
- Built 1984/1985
- unbermed.
→ Landfarm area under Retention Basin.

Pump House 2 / FAT - removed

1020 Oil Rec Fac
- field now
- water 0-6 inches in NE corner w/ slight oil sheen natural or unnatural?
- Ditch on SE side.

1027 2-photos from SE corner
1st is East side, 2nd West side.
Storage Building in NW corner
Some tanks had pesticides in addition to oils
Earthen dike surrounded entire area

Retension

1039 Pond 6 - 10-13 feet clay
- liner construction

1039 Pond 10 - 10-1 feet slopedown
- decon trailer

Waste Water Treatment Plant
2 - underground tanks
1 - transfer
3 - aeration
1 - Chlorination Chamber
2 units put in in 1984 the
rest is pre-1984
- Maintenance Bldg.
- Truck unloading Bldg.
~~Each~~ Each has underground
tank for Sanitary wastes
pumped out by tanker
to Treatment Plant.
- All ~~of~~ box Cistern for clean water.
1046 Pumphouse 2 / FAT-2 photo
- Some Water 1-2 inches in
Secondary Containment.

1050 North of Waste Cell - Looked

at Tank for Capillary
drainage. Water is
Currently drained directly
off site.

Waste Cell - Completed 9/1/88
- 30 mil liner HDP
w/ 2 inches Styrofoam insulation
- to protect Clay layer

1057 Photo of leachate from Waste Pile. west side.
1058 Photo of Cell NE Corner
1 - east side, 2 - NW side.

1105 Burrow Pit 2 - Filled w/ water
- 1984 started
- Former farmed field until
recently.

1108 Meyer ditch – Spill
filled up to last gate
Vac truck pumped it out

1110 Storage of W-Tank waste
materials at NW Corner
No pad – just pavement

1114 Pond 12 photos 24 & 25
NW Corner, SW-1, NE-2.
- Spill from pipe leading
from Pond 12 to FAT A
- Acidic smell strong
- Mike said pH is probably
about 3-4.
- Pumped out to FATA

1117 Burrow Pit 1 – Demolition
debris at North side.

1120 Pond 11 – Sludges 9-12 inches
- Black sludges
- Pond 12 has relatively little
Sludges
- Pumped to FAT-A

1130 W-Tanks
Pre-1975

W-7 W-5
W-4
W-3

- Acids and Pharmaceutical Wastes
odorous
- 1983 W-Tanks converted
to tank odorous waste
due to odor complaints
- Odourous wastes pumped
down well through filters

Excavate 2 ft around diameter
W-3/4 8 side, 4 from underneath
5/7 4 side, 4 from underneath

W-3/W-4 Contamination @ 6 & 18 inches
- excavated to 2 feet
5/7 excavated to 18 inches.
metals, mercury, bkgd+2SD
W-3 had PCB in Sand
from "asphalt" coating. 92.8 ppm
2- photos for W-3/4, W 5/7
1142 Landfarm photo
- excavated about 2 feet
- See telephone pole.

1151 Lube oil (waste) tank photo
- 1000 gal bermed with gravel
about 1 ft high - no Staining

1154 Photo of W-3 tank wastes
AOC on pavement NW of Truck
unloading facility.
- Mike Said it is one-time
storage
- Scheduled to go monday
- Never used area before
- April 5 is oldest date
1159 Rolloff boxes for Tank Closure
photo have been at the east
Side of parking lot South
of Drum Accumulation Pad Since
April 5, 1990 earliest
Rolloff boxes are off pad, on the grass.
Sludges mixed w/ corn cobs
to dry.
Rolloff boxes are covered /
7 Boxes off pad, 1 on pad.
Area is just North of Scrubber.

1200 South land farm area
- field west of old Sampling Bay.

1215 Left Facility for lunch

1310 Conversation at lunch w/
Jerry
Jeff
Ed
Lou

- W. Tanks moved from somewhere else to present location.
- unknown date of installation.

Oil Rec Facility
- Corrosion of NE corner of Storage Bldg originally part

of Oil Rec Facility.

1430 Return to facility w/
Jerry Jenssen
Ed Gorove
Lou Ehrhard
Mike Curry
John Monegan

Jeff Staers has left

- Bldg. at Oil Reclamation Facility was boiler house.
- Boilers (2) produced steam to keep oil fluid.
- Boiler were sent to Evergreen Landfill.
- No wastes going into building - burned diesel.

John Moneghan 1976

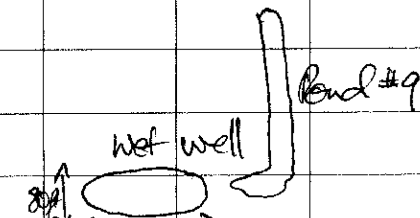
East landfarm - Late 70s (77,78)
- neutralize acid w/ lime
  precipitates landformed
- Water discharged to
  town

North had same w/
  pond sludges
South Landfarm - No info
Materials tilled in
East farm lasted a few weeks only.

Waste Received went directly
to ponds.

Pretreatment Bldg. w/ outdoor
tank where acid/pickle
liquor was neutralized
with lime

Bldg and Tank not used after
1979 - ~~size unknown~~ (e) about 10,000 gal.
Cone-type tank.
Wet well closed in August 1984
1st pond at facility
May have been attached to #9

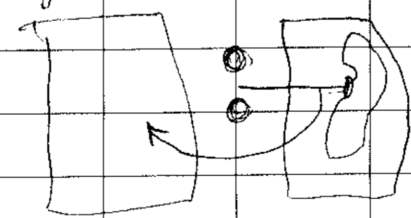


John said there was a
weir in between Pond 9 and
wet well.

Cyanide Reactor - Same as
Pretreatment Tank - never
used again after explosion.
Cleanup unknown, tank full.
Mostly gases released.

Whole Site was Surrounded
by earthen dike until 1984
when Surface water Management
plan was implemented?
No specific information
on 96,000 gal Pond 7/4 transfer
spill.
No info on OLD Drum
Storage Pad
- FATS A&B were probably
put in with filter building
in late 1970s ~77,78
- FAT-C Stores Brine used
in wells no HW.
- FAT-3 spill No info
- Pug mill used in early 80s
used east side of Pond 4
- Between Ponds 4 and 5
Two Tanks 500 gallon

Ropes moved between ponds



Boom swung out to
either pond.
All disposed in waste pile

W-Tanks 7 and 8 and 9 were new.
W-Tank put in 77,78.

Maintenance - unknown aerator
Truck unloading - 1,500 gal concrete
w/ aeration System
Lab tank - original taken out
early 80s ~ 2000 gallons.
due to leakage.

1558 Man hole Cover of Truck
photo Unloading Tank Septic (Cesspit)
South of building Stairway

1607 Maintenance Bldg Cesspit
photo tank - South side of
SW corner of building

1610 Took road out to Hay Mill
8-hoppers were not Pugmill
but for closure of Ponds
4,5 & 7.
Pug mill was at ponds
1616 and decommissioned ~~at~~
photo 1984. ~~Mixed line at~~
~~Hay Mill area~~ / Used
in closure of wet well.
Wet Well used as pilot
study for 4/5/7 closure

All wet well materials
are now in waste pile.

1627 Borrow Pit - 3 photos
from North side

1628 Meyer Ditch outlet
AOC Pond 12 Spill backed
up to gate - looking south
flow to North.

Transfer pipe from Retention
Basin is 2" polyethlene
200 ft lengths and 4" PVC
outer casing.

1636 Storage Bldg at ORF
photo corrosion at NE corner

1655 Signed out and left facility.

[signature] 8/8/10

6/21/90 0945

Spoke to Jeff Steers, OEPA.

Asked him:

1) if he knew the location of the seeps from Ponds 4 and 7 that were sampled in Aug & Sept 1985?

- He said he believed they were outside of the Pond dikes (ie, not contained within the ponds.

2) if OEPA has the analytical data for clays underlying 4, 5, and 7 that was used for approval of Phase I closure?

- He said he knows they're around and will try to find them for me.

3) if OEPA has analytical data used for approval to backfill Oil Reclamation Facility?

- He said that should be around also.

4) if OEPA has data and 55-10 area remediation.

- He said it should have been in files.

5) if UG Tank data has been submitted?

- He said it hasn't, officially. He's heard there were a few hot spots found.

6) I told him that I was under the impression that capillary water was being drained to the expressway ditch? Is this true?

- He said yes

Do they have a permit for this?

- No. But they ~~have~~

NPDES

applied for a permit to
discharge Barrow Pit 2
water to ditch in anticipation
of excavating more clay.

- He said he'll look for
the analytical data and
get back with me.

6/21/90

5/8/90 1 3

0845 Jacobs personnel Lou Erhard and Ed Gordie arrive on site and check in

Meet with the following CWM personnel:

Kim McGuire
Sue Murphy
Thomas Fryer
Fred Nicar
Steve Lonneman

Dave Ferguson - OEPA

Begin to discuss rationale for conducting VSI
General meeting notes:
- land disposal stopped by 1983
- CWM wants a copy of the photo log
- 517-acre site - presently liquid disposal only - generally acidic wastes containing metals

- General process involves unloading the wastes, storing in one of several tanks, ultimately blended and filtered
  1) filter press
  2) ~~ff~~ polishing filters (<5μm)
- injection system - transfered via above-ground pipes (double construction).
- Injectant typically has pH <1 so it doesn't plug up the pores.
- all solids generated are either incinerated or landfilled at Adams Center Landfill (CWM). Non-liquid wastes include filter cakes and filter cartridges
- Liquid wastes from the following sources are accepted: plating baths, spent pickel liquor, metal finishing, leachate from solid and hazardous waste landfills, F-coded solvents (<1% by volume), rarely

accept ~~cos~~ caustics, single-phase liquids only. Most every type of listed wastes are handeled here
- Goal is to produce a homogenious liquid to inject into the deepwells
- Ponds on site were used in the past to both settle and homogenize wastes
- CWM was given permission to place waste-pile into landfill cell 11/7/88, one day before land ban restrictions came into effect.
- Future operations are limited to deep-well injection, but depends on no migration petition and Part B
- H_2SO_4 is the major injectant - reacts with dolomite (found above the sandstone) and forms gypsum, which acts as a seal
- Weston performed a reflection study - the results indicate that no major structural features (problems) are evident.

Y

- Four wells active (2, 4, 5, 6)
  1, 1A & 3 abandoned and plugged.
- Ponds 4, 5 & 6 (EG) 7 in the process of closure (now landfill); 11 & 12 still in place
- W-series tanks presently being removed under "clean" closure (4 tanks)
- Ponds 6W, 9 & 10 closed ~ 1981 - still subject to debate on whether a CP is still required for these units
- GW: only one well (L-19) shows consistent hits
  - low range of 1,2-dichloroethane - other hits are related to laboratory contaminants.
  CWM planning small-scale soil investigation in this area
  total metals detected in most wells - dissolved metals generally not detected
  - 39 wells on site - slow recharging & often dry - analyzed semi-annually for: VOC, metals, PCBs, TOX, SO_4, Cl

: 5

OEPA = detection monitoring
EPA = assessment monitoring
Surface water Mngt. System
- much of surface regraded to prevent contact w/ HW - system of gate valves - most water diverted to Meyers Ditch
- all wastes deep-well injected (sanitary also)
Past Operations: oils skimmed off of pond - recycled because acid does not evaporate, more & more ponds were constructed - acid cloaks oil (discovered in 70's); originally did not accept acidic wastes - just oils
Sluice sump - no longer used - purpose - leaf litter cleaning
~~Hwa~~ EA Pug mill - still on site - decon'ed, used after 11/8/80 according to D. Ferguson
- fixed wastes - needs CP submitted
1045 H&S meeting - general concerns, levels of protection, evac. procedures
1130 leave site for lunch

1295 Arrive back on site - prepare for field

weather: windy (up to 35 mph), clear & mild ~ upper 70°F

Site tour w/ Steve Lunneman & Sue Murphy (CWM), Lou Eckhard, Ed Gorove (Jacobs)

1326 2,000 gallon polyurethane tank used for lab purposes - emptied every 2 - 2½ weeks - off loaded as in a similar fashion as trucks - connected to lab via underground piping. Handles mostly acidic wastes, but also everything. Tank is flush w/ ground surface & has standpipe & alarm system

1330 Old sample bay (not used during last 4 or 5 months - now used for manifesting purposes. Area is ~ 60'x 75', metal covered roof & open sides - central drain (sump) evident

1339 Maintenance vaults & tanks - up to 2 dozen small 5'x5'x? concrete vaults, plastic lined, designed to be used for emergency storage of liquid wastes if a pipe should break

1352 Truck Unloading bay(s): following sampling, the trucks are unloaded via gravity into a underground line (~ 6" diameter)

1355 Wastes flow into gravity separators

which are the first particulate filter.
A total of 4 such units exist
~ 10'x15'. A scrubber system
limits air emissions to < 3 lbs/year.
Tanks are metal, that have been
coated w/ polyurethane. Steve L.
says that these tanks are not
cleaned very often, but did not
elaborate on this.

1400 "V" tanks (4): liquid flows
here following gravity filtration.
Serve as surge tanks. Capacity &
construction material unknown. These
tanks also have air scrubbers.
Do not have proper secondary
containment, so have to have
yearly assessment for integrity.

The 2 sets of tanks are each used
for specific waste types (F-coded
wastes & not).
All tanks are contained in a large,
18"-thick concrete vault. Staining
or other evidence of releases not
observed. Some moisture evident
on bottom & sides, but is related
to condensation according to Steve L.
2" flush lines coming from pit observed.

External truck wash water flows into
internal truck ~~tank~~ wash water, then
into "V"-tanks

V tanks are 6,300 gallons - stainless
steel, coated.

Sand interceptor volume - 750 gallons
Cleaned every 3 months to 6 months,
depending on waste types.

1422 Gas Scrubber Plant - NaOH scrubber 2.6 lbs last year. Plant surrounded by 1'-thick concrete containment system. Sump to observed. Staining or other evidence of release not observed

1427 Drum Accumulation Area - temporary storage of 16 gallon drums, prior to shipment. These drums are reportedly incinerated. Most drums contain solids, such as cartriges from polishing filters. Pad is concrete, several inches thick w/ a ~~sump~~ slope (dead ending). Six inch berm surrounds pad. No staining / releases observed. Pad is 25' X 45'.

1433 Observed above-ground pipes which transfers liquids from "V"-tanks to "T"-tanks. 6" diameter PVC and a fiberglass-reinforced pipe, wrapped in insulation. All piping is either low pressure or gravity feed. All pipe here and elsewhere at the facility have secondary containment and/or leak-sensing devices. Evidence of release not noted.

1440 "T"-tanks - (6) brought on about one year. Each tank is somewhat dedicated to specific waste types. The liquids are then blended, prior to filtration. Tanks are each about 45' tall & ~~25~~ 20 & 30 ft in diameter. 4 ~~3~~ - 200,000 & 2 - 100,000 gallon tanks

SG ~~[illegible]~~ 2241

"T"-tanks surrounded by concrete containment system, 4' high, 1' thick. Outside dimensions ~150' x 150'. The containment system is coated (unknown material) & divided into 4 quadrants, sloping into individual sumps. Sumps discharge back into "T"-tanks (rain).

1452 Filter Press Building: Liquid wastes flow from "T"-tanks to filters. Consists of both filter press and polishing filters. HnU readings up to 7 ppm inside building.

According to worker, wastes in T-2 and 6 flow into FAT-1A, & then into either leaf press or

filter press building, then back into T-5, into the polishing filters and finally into FAT-B. Leaf filter inside Filter Building #1, Filter press and polishing filters in Filter Building #2.

Polishing filters 5 and 0.5 μm (2 each).

Filter press is used 99% of the time over the leaf filter due to cleaning and maintenance.

Last year, 28 or 29 million gallons were injected - capacity is ~104,000,000 gallons.

1506 Sluice Pit - Sump used during

cleanout of filter presses. Not presently used. Contained inside metal bldg 15' x 15'. Sump itself somewhat smaller w/ metal lid - volume unknown

1511 Building #1 - Leaf filters (2)
Used only when cleaning out ponds.
Also, 2 precoat filter present, uses diatomaceous earth as a prefilter. Designed to mix and add coating to filter cloth. Only residual waste present in precoat, if at all. Entire system (Bldg #1) is contained w/ concrete berm, enclosed in metal bldg.

1516 FAT tanks - 2 (A + B) presently used. Volume or capacities unknown

, est. to be ~ 12,000 gallons each. FAT tanks enclosed w/ secondary containment of concrete berm, 3' high, 1' thick. Some standing water observed - No staining or evidence of ~~release~~ release observed, containment is also coated. Tanks constructed of reinforced fiberglass.

1602 FAT-3 - associated w/ FAT 5 + 6 (serves as a pumping station).
FAT-3 surrounded by concrete, secondary ~~contain~~ containment system, 3' high

New tanks are present outside the existing FAT-tanks. These are double walled tanks.

1615 Unknown FAT tank near borrow pit. FAT tank contains secondary containment as w/ other tanks

1628 Arrive at FAT-5 - Similar as others before. A rust-colored stain observed about 3" up the dike walls, which is the level of the float which activates the sump. No evidence of stressed vegetation visable surrounding containment system.

Pump House # 5 - same as # 3

1638 Haymill - presently used for storage of scrap. At least 5 25' - diameter concrete pads are present - maybe grain silos

1652 Drove to well #2 - no evidence of release noted. High-pressure liquid pumped from Pump House #3

1654 Pump House # 2 - feeds well # 4. Associated FAT tank not being used because secondary containment system integrity reportedly not adequate. CWM intends to replace FAT tank w/ new tank that meets MTR's

Finish tour for the day - conduct brief exit meeting

1715 Leave site for the day

5/8/90

5/9/90

0810 Arrive on site - wait /a
Steve Lonnemon

Weather: mild (60°F) clear and windy

0825 Meeting with CWM Personnel:
Mike Curry - started 2/84
Sue Murphy
Steve Lonnemon

Discussed history of east land/farm:
- "Discovered" in 1984 by Mike C.,
excavated & filled in 1984 also

- Maintenance tanks
 ∘ old = polyethylene tank inside concrete vault
 ∘ new = above ground poly tank

Sluice Pit purpose: Leaf filters "backwashed" - contents into pit. Stopped in 1986 - Leaf filters have been modified since to produce dry cake.
Service from ~~60's~~ mid 70's (?) to 1986

Filter press on line early 1987

Well 1 located ~ 100' east of Filter Bldg. #2. - Used to be Pump House #1, which fed 1, 1A and 2 deep wells.

Pump House 2 : fed wells 3 & 4, currently not used (Pump House)

Pump House 3, feed wells 5 & 6

Abandoned 1A in 1985 - and
pump house 1 - later moved to
feed well #6

1986 well 3 abandoned -
Pump House #4 constructed in 1986
& serves well #4 presently

0844 Jerry Lawson, EPA arrives

Filter Bldg 1 formed in 1987 or 1988
- drained into Sluice Pit

FB-2 built in 1986 prior to being
PH #I. Received 1ˢᵗ new floor
structure to accomodate filter press

FATs A, B & C existed prior
to 1984 - exact dates unknown

FAT C used for brine storage,
may not have been used for storage
of HW

FAT-1 feeds well 6
" 2 " " 4
" 3 " " 2 and FAT 1 and 6
" 5 " " 5

FAT 5 started ~ mid 1985
" 1 moved / started " "
3 pre - 1984

Secondary containments added later

FAT 5 - done at one time (1985
FAT 1 " " "
FAT 3 containment built 1984
FAT 6 " " 1985

FAT A - containment built 1984
FAT B " "

W-series tanks - earthen dike - construct
during tank construction
W-tanks on line pre-1975
Large concrete pads near burrow
pit were used for grain elevators
Foundations were from barns etc.
Removed in 1984 (Barn only)

Oil/water tanks (8)
removed in 1985. earthen berm
surrounding tanks - some PCBs
present, based on soil samples
All wastes from these tanks, pads
etc. are stockpiled in waste pile.

UST near FAT-3 in 1984 - used

as a dump for FAT 3 - line might
have broken, creating spill? asked
by Lou E.

1985 tank removed near Pond 9 - stockpiled
in waste pit.

Several gasoline, diesel tanks, sanitary
tanks also present today

Pug mill decomissioned in 1984 - silo
used after for storage of lime
Kiln dust

Old truck wash between Ponds 5 & 7

Pump House between Ponds 7 & 11
- bldg razed, concrete & debris to
Waste Pile.

(low pressure)
transfer piping: all put in last year (1984) fiberglass, cement welded & auto. pressure shut off

0924 Jeff Stacy arrives OEPA

High pressure lines - double lined
internal - fiberglass
external - PVC
each line has detection ~~ports~~ pits which sounds an alarm

low pressure line to well # 4 is PVC - scheduled for upgrade next year.

West borrow pit used to construct dikes for 11 & ~~12~~ 12

and also to repair south side of ponds 11 & 12 in 1984/1985

0940 Leave office area for field

All piping is inspected every two hours or every hour during use

0945 Arrive at the retention pond and stockpile.

Retention pond appears to be somewhat saturated w/ oil or oily waste - staining of banks observed.

Large quantities of steel present between pond & stockpile.
Concrete removed from Pond 4

is also present.

Retension pond presently used as a collection for leachate off of the Stock Pile. Transfered to T-tanks via double constructed Pipe (4" + 2")

Stressed vegetation observed for several feet surrounding pond - a small amount of floating imiscible layer (oil ?) also present.

Mild to strong "electrical" odor observed on North side of Retension Pond & Waste Pile

1015 Old decon pad - South east of Waste Pile - concrete, 25' x 40' - drained into Retension Pond - Used during construction of Waste Pad 1984 / 1985

Waste Pile - Covered w/ Polyethylene. Cover blew off at least 3 times

1022 Old Oil ~~sor~~ sa recovery facility. 8 horizontal tanks were present Area now flat, graded & seeded

1040 Sanitary Treatment System Wastes brought in from maintenance bldg & truck unloading bldg, treated, aerated, chlorinated & finally disposed of via deepwell inject.

1100 Observed TSCA Landfill - approx. 2' of water is present in the deepest part

1107 Drove to the main borrow pit. According to Mike Curry, of EG the area was used for farming till recently.

1113 Pond 12 - some standing water observed in middle of pond - pH reportedly about 3 or 4. Placed into service mid to late 70s. No staining or discolored soils visable.

1121 Pond 11 - some standing water present. Sludge varies from 9 to 12 inches, evidenced by staining (black). According to Mike Curry, when CWM closes these units (Ponds 11 & 12), the units will be closed in place by chemical fixation, & cover - GW results have shown clean in past.

1128 W-series tanks - contained acidic & pharmaceutical wastes (organics). Presently undergoing closure - soils and metal tank remnants being landfilled according to classification.

1150 Maintenance Bldg - Waste oil tank above ground tank, ~1000 gallons, 2 ft. earthen secondary containment system surrounds tank.

Also observed a 500 gallon No. 1 fuel oil tank within berm. Both tanks appeared structurally sound - Evidence of release not observed, but contained a gravel bottom.

1203 Temporary Drum and Rolloff Storage Area. Located N of truck unloading bays - area created by temp. storing wastes generated from W-series tank closure. This area has not been used for waste storage before. A total of 290 16-gallon drums exist in a trailer & on the ground. 7 Rolloff containers are present. Area is paved, but appears to slope to the sides. All drums appear to be properly labeled and are in excellent structural condition. Rolloffs are covered & no evidence of leakage was observed.

1217 Leave site for lunch

1420 Arrive back on site

Meeting w/ Mike Cury

Oil reclamation facility

existing bldg was used as the boiler house - decommd as part of closure of the entire facility. Fuel was diesel. Old boilers sent to Evergreen (contained asbestos), but not in contact with HW.

A sample tank does not presently exist - a sample is taken directly from the tanker via thief, transferred into a container & sent to the lab - ~~no~~ EC excessive volume of waste put back into tanker, ∴

no need for tank - this has been the practice since post 1984.

1492 John Monaghan CWM
Started in 1976

Sludge Farms

Pre-treatment in the past / settlings (precipitate) from the lime neutralizing process would be landfarmed - liquid to farm for disposal - farmed in
EG ~~both~~ the SG ~~north~~ & east farms
Sludge from ponds farmed in both SG ~~farm~~ farms.

Farms active in late 70's
- best guess (sludge deposits)

Procedures - dump waste & run a disc over it to incorporate into soil

Actually only performed for a relatively short period of time, maybe only a few weeks

Ponds 4, 5 & 7 - used in the early part of the site's history - lab wastes dumped in one of these ponds, as were tankers

Pre-treatment Bldg - between 6E & 6W - neutralizes spent pickel liquors +EG - stopped using in 1979 - 1980 - removed between 1980 & 1984.

Cyanide explosion

Part of pre-treatment system
(same tank)
Explosion in 1979 - when tank no longer used. Tank most likely full during explosion.

Any spill(s) prior to 1984 were contained within the site & injected into a deep well. Surface water management plan effective in 1984 to present.

FAT A, B & C

A & B built during same time as leaf filters, probably late 70's

C - not used for HW storage

Pug mill used until 1984
(when decommissioned)

Skim Oil Tanks

Rope skim machine between 4 & 5 Ponds
500 gallon - smaller - outflow to larger tank of unknown size.
Presently disposed of in Waste Pile.

W-series tanks

most were here prior to 1976 -
some were new after 1976.

1605 Conducted final exit interview
1610 Inspected the two sanitary

waste cisterns (truck unloading and maintenance), pug mill.

1620 Drove around the NW portion of the site (around borrow pit) Evidence of releases not observed inside or outside of fenced property

1635 Drove to Old Boiler room as part of Oil Recovery Facility

1655 Leave site for the day

5/9/90

ATTACHMENT D
PHOTOGRAPH LOG

PHOTOGRAPH #1
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Lab waste underground storage tank
LOCATION: Lab Waste Tank
DATE: 05/08/90 TIME: 1328
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #2
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Former sampling bay, covered and bermed
LOCATION: Former Sampling Bay
DATE: 05/08/90 TIME: 1332
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

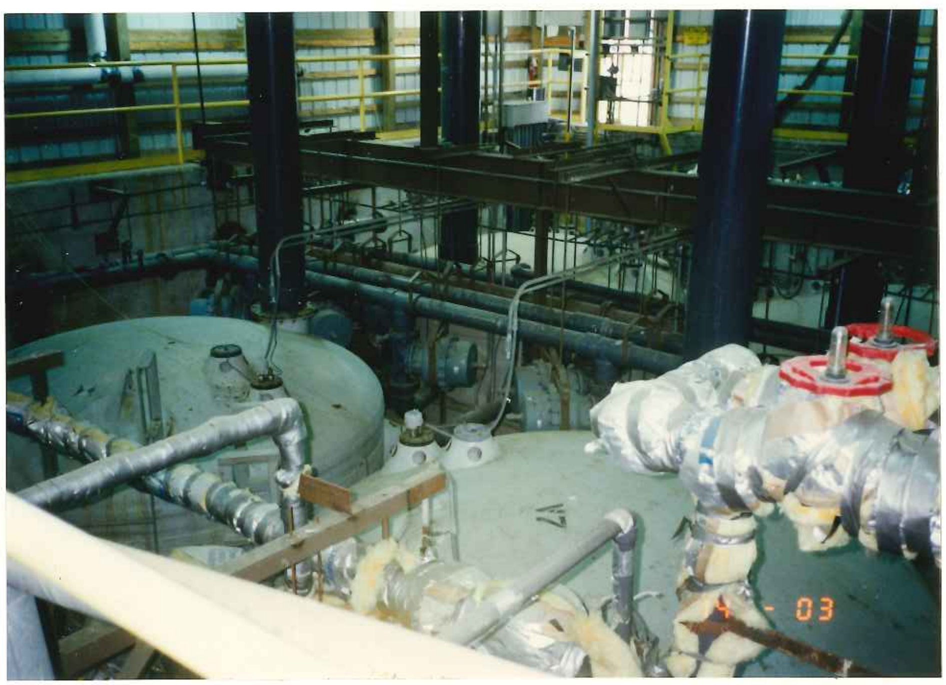
PHOTOGRAPH #3
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Maintenance tank in concrete vault, east of Pond 11
LOCATION: Maintenance Tank
DATE: 05/08/90 TIME: 1341
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #4
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Inside Truck Unloading Facility
LOCATION: Truck Unloading Facility
DATE: 05/08/90 TIME: 1351
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #5

OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

SUBJECT: Two "gravity filter" Interceptor Tanks, in ground
LOCATION: Interceptor Tanks
DATE: 05/08/90 TIME: 1355
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove



PHOTOGRAPH #6

OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

SUBJECT: Four V-Tanks inside covered vault
LOCATION: 4 V-Tanks
DATE: 05/08/90 TIME: 1403
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #7
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Inside Truck Washing Facility
LOCATION: Truck Washing Facility
DATE: 05/08/90 TIME: 1419
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #8
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Air Scrubber and stack
LOCATION: Air Scrubber
DATE: 05/08/90 TIME: 1421
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #9
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Bermed, concrete storage pad
LOCATION: Drum Accumulation Pad
DATE: 05/08/90 TIME: 1426
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #10
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Above ground maintenance tanks north of Scrubber
LOCATION: Maintenance Tanks
DATE: 05/08/90 TIME: 1432
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #11

OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

SUBJECT: Above ground transfer piping from V-Tanks to T-Tanks
LOCATION: Transfer Piping
DATE: 05/08/90 TIME: 1434
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #12

OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

SUBJECT: Five polish filters inside Filter Building #2
LOCATION: Filter Building #2
DATE: 05/08/90 TIME: 1458
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #13
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Filter press inside Filter Building #2
LOCATION: Filter Building #2
DATE: 05/08/90 TIME: 1500
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #14
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Six T-Tanks inside concrete secondary containment
LOCATION: T-Tanks
DATE: 05/08/90 TIME: 1502
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #15
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Covered Sluice Pit inside building
LOCATION: Sluice Pit
DATE: 05/08/90 TIME: 1507
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #16
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Precoat and Admix Tanks in Filter Building #1
LOCATION: Filter Building #1
DATE: 05/08/90 TIME: 1513
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #17
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Two Leaf Filters in Filter Building #1
LOCATION: Filter Building #1
DATE: 05/08/90 TIME: 1514
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #18
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Transfer pumps inside bermed housing
LOCATION: T-Tank Pumphouse
DATE: 05/08/90 TIME: 1523
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #19
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: FATs A and B in concrete secondary containment
LOCATION: FAT A and FAT B
DATE: 05/08/90 TIME: 1525
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #20
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: FAT C in same concrete containment as FATs A and B
LOCATION: FAT C
DATE: 05/08/90 TIME: 1525
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #21
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: FAT 3 in concrete secondary containment
LOCATION: FAT 3
DATE: 05/08/90 TIME: 1603
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #22
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Bermed FAT 1 next to Pump House 1
LOCATION: FAT 1/Pump House 1
DATE: 05/08/90 TIME: 1614
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #23
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: One polish filter/one centrifugal pump in Pump House 1
LOCATION: Pump House 1
DATE: 05/08/90 TIME: 1617
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #24
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Bermed FAT 5 and Pump House 5
LOCATION: FAT 5/Pump House 5
DATE: 05/08/90 TIME: 1630
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #25
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Two polish filters/One piston pump in Pump House 5
LOCATION: Pump House 5
DATE: 05/08/90 TIME: 1633
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #26
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Eight kiln dust hoppers, decontaminated, on concrete storage pad
LOCATION: Hay Mill Area
DATE: 05/08/90 TIME: 1640
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #27
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Pond closure equipment, decontaminated, on concrete storage pads
LOCATION: Hay Mill Area
DATE: 05/08/90 TIME: 1643
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #28
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Borrow Pit #1 as seen from northeast side
LOCATION: Borrow Pit #1
DATE: 05/08/90 TIME: 1651
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #29
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: FAT 2 with concrete secondary equipment
LOCATION: FAT 2
DATE: 05/08/90 TIME: 1700
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #30
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: One polish filter/one piston pump inside Pump House 4
LOCATION: Pump House 4
DATE: 05/08/90 TIME: 1700
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #31
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: North of Retention Pond looking south
LOCATION: Retention Pond
DATE: 05/09/90 TIME: 0959
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #32
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Retention pond, drainage pump, and Waste Pile in background
LOCATION: Retention Pond/Waste Pile
DATE: 05/09/90 TIME: 1000
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #33
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Leachate from base of Waste Pile, northeast corner
LOCATION: Waste Pile
DATE: 05/09/90 TIME: 1005
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #34
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Unbermed concrete Decontamination Pad
LOCATION: Decontamination Pad
DATE: 05/09/90 TIME: 1014
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #35
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: East side of the former Oil Reclamation Facility as seen from the Southeast
LOCATION: Oil Reclamation Facility
DATE: 05/09/90 TIME: 1027
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #36
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: West side of the Oil Reclamation Facility as seen from the Southeast
LOCATION: Oil Reclamation Facility
DATE: 05/09/90 TIME: 1027
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #37
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Area of the former Ponds 6 and 10 and Drum Storage Area, looking east
LOCATION: Ponds 6 and 10/Drum Storage Area
DATE: 05/09/90 TIME: 1038
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #38
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Area of the former Ponds 6 and 10 and Drum Storage Area Looking SE
LOCATION: Ponds 6 and 10/Drum Storage Area
DATE: 05/08/90 TIME: 1038
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #39
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Underground sanitary wastewater treatment tanks and tanker truck
LOCATION: Sanitary Wastewater Treatment Plant
DATE: 05/09/90 TIME: 1045
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #40
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Former secondary containment for FAT 2
LOCATION: Former FAT 2 Containment/Pump House 2
DATE: 05/09/90 TIME: 1046
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #41
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Leachate from base of Waste Pile, west side
LOCATION: Waste Pile
DATE: 05/09/90 TIME: 1057
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #42
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Southeast half of Closure Cell from northeast corner
LOCATION: Former Ponds 4, 5, and 7/Closure Cell
DATE: 05/09/90 TIME: 1058
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #43
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Northwest half of Closure Cell from northeast corner
LOCATION: Former Ponds 4, 5, and 7/Closure cell
DATE: 05/09/90 TIME: 1058
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #44
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Southwest half of Pond 12 from northwest corner
LOCATION: Pond 12
DATE: 05/09/90 TIME: 1111
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #45
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Northeast half of Pond 12 from northwest corner
LOCATION: Pond 12
DATE: 05/09/90 TIME: 1111
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #46
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Northeast half of Pond 11 from northwest corner
LOCATION: Pond 11
DATE: 05/09/90 TIME: 1122
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #47
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Southwest half of Pond 11 from northeast corner
LOCATION: Pond 11
DATE: 05/09/90 TIME: 1122
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #48
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Dike between Ponds 11 and 12, looking south
LOCATION: Pond 11/Pond 12
DATE: 05/09/90 TIME: 1122
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #49
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Soil excavations beneath Tanks W-3, left, and W-4
LOCATION: Former W-Tanks
DATE: 05/09/90 TIME: 1138
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #50
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Excavation beneath W-7, left, and deconstruction removal of W-5
LOCATION: Former W-Tanks
DATE: 05/09/90 TIME: 1138
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #51
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: West half of North Landfarm Area
LOCATION: North Landfarm Area
DATE: 05/09/90 TIME: 1142
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #52
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: 1000 gallon Waste Oil Tank with gravel berm
LOCATION: Waste Oil Tank
DATE: 05/09/90 TIME: 1151
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #53
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Drummed hazardous waste on northwest corner of pavement
LOCATION: Truck Unloading Facility North Parking Lot
DATE: 05/09/90 TIME: 1154
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #54
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Rolloff boxes of hazardous waste on east edge of pavement
LOCATION: Truck Unloading Facility North Parking Lot
DATE: 05/09/90 TIME: 1159
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #55
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Rolloff boxes of hazardous waste on east edge of pavement
LOCATION: Truck Unloading Facility North Parking Lot
DATE: 05/09/90 TIME: 1204
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #56
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Looking west over the South Landfarm Area from the Former Sampling Bay
LOCATION: South Landfarm Area
DATE: 05/09/90 TIME: 1209
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #57
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Manhole for underground Cesspit
LOCATION: Truck Unloading Facility Cesspit
DATE: 05/09/90 TIME: 1558
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #58
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Hose hookup for underground cesspit
LOCATION: Maintenance Building Cesspit
DATE: 05/09/90 TIME: 1607
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #59
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Decontaminated Pug Mill stored on the ground at the Hay Mill Area
LOCATION: Hay Mill Area
DATE: 05/09/90 TIME: 1616
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #60
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: East side of Borrow Pit #2 as seen from the north side
LOCATION: Borrow Pit #2
DATE: 05/09/90 TIME: 1627
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #61
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Center of Borrow Pit #2 as seen from the north side
LOCATION: Borrow Pit #2
DATE: 05/09/90 TIME: 1627
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #62
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: West side of Borrow Pit #2 as seen from the north side
LOCATION: Borrow Pit #2
DATE: 05/09/90 TIME: 1627
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #63
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Meyers Creek outlet gate at north side of facility property
LOCATION: Meyer Creek
DATE: 05/09/90 TIME: 1628
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #64
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING
SUBJECT: Corrosion at northeast corner of Storage Building
LOCATION: Oil Reclamation Facility Storage Building
DATE: 05/09/90 TIME: 1636
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

PHOTOGRAPH #65

OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

SUBJECT: Two polish filters/one piston pump in Pump House 3
LOCATION: Pump House 3
DATE: 05/08/90 TIME: 1610
PHOTOGRAPHER: L. Ehrhard
FILM: Kodacolor ASA 200
FILE: 10-E054-00
WITNESS: E. Gorove

JE JACOBS ENGINEERING

RECORD OF PHOTOGRAPHS Roll #1

Film Type Kodacolor
ASA Number 200

Project Code 10-E054-00

PHOTO NO.	DATE	TIME	FOCAL LENGTH	WEATHER CONDITIONS	LOCATION	DESCRIPTION OF PHOTOGRAPH
1	5/8/90	1328	85 mm	Sunny	Lab Waste Tank	Underground Storage Tank
2	"	1328	"	"	"	"
3	"	1332	"	"	Old Sampling Bay	Covered, bermed bay
4	"	1341	"	"	Maintenance Tank	UST - east of Pond 11
5	"	1351	"	"	Truck Unloading Facility	Inside Building
6	"	1355	"	"	2 Interceptor Tanks	USTs / Gravity Filters
7	"	1403	"	"	4 V-Tanks	4 Tanks inside Vault
8	"	1419	"	"	Truck Unloading Facility	Inside Building
9	"	1421	"	"	Air Scrubber	Scrubber and stack
10	"	1426	"	"	Drum Accumulation Pad	Bermed Concrete pad
11	"	1432	"	"	Maintenance Tanks	Tanks north of Scrubber
12	"	1434	"	"	Piping to T-Tanks	Transfer Piping
13	"	1450	"	"	W-Tanks 3,4,5	Tank removal/excavation
14	"	1450	"	"	6 T-Tanks	Bermed T-Tanks, looking north
15	"	1458	"	"	Filter Bldg #2	5 Polish Filters inside
16	"	1500	"	"	"	Filter Press
17	"	1502	"	"	T-Tanks	T-Tanks; bermed
18	"	1507	"	"	Sluice Pit	Covered Pit inside Building
19	"	1513	"	"	Filter Bldg #1	Precoat and Admix Tanks
20	"	1514	"	"	"	2 Leaf Filters
21	"	1523	"	"	T-Tank Pumphouse	Pumps inside bermed housing
22	"	1525	"	"	FAT A & FAT B	Bermed FAT Tanks
23	"	1525	"	"	FAT C	Bermed "Acid Tank"
24	"	1603	"	"	FAT 3	Bermed FAT 3
25	"	1610	"	"	Pumphouse 3	2 Polish Filters / 1 piston pump

Notes: (1) Express Time in 24 hour clock notation; (2) Focal Length is of lens used.

Signature of Photographer [signature]

JE JACOBS ENGINEERING

RECORD OF PHOTOGRAPHS

Roll #2

Film Type Kodacolor
ASA Number 200

Project Code 10-E054-00

PHOTO NO.	DATE	TIME	FOCAL LENGTH	WEATHER CONDITIONS	LOCATION	DESCRIPTION OF PHOTOGRAPH
1	5/8/90	1614	35M	Sunny	FAT 1/Pump House 1	Bermed FAT next to Pump House 1
2	"	1617	"	"	Pump House 1	1 polish filter/1 centrifugal Pump
3	"	1630	"	"	FAT 5 /Pump House 5	Bermed FAT and Pump House
4	"	1633	"	"	Pump House 5	2 polish filters/1 piston Pump
5	"	1640	"	Partly Cloudy	Hay Mill Area	8 Kiln dust hoppers
6	"	1643	"	"	"	Pond Closure equipment
7	"	1645	"	"	Borrow Pit 2	From Southwest Side
8	"	1651	"	"	Borrow Pit 1	From northeast side
9	"	1700	"	"	FAT 2	Bermed FAT
10	"	1700	"	"	Pump House 4	1 Polish Filter / 1 Piston Pump
11	5/9/90	0959	"	Cloudy	Retention Pond	north side looking South
12	"	1000	"	"	Retention Pond /Waste Pile	Retention Pond drainage Pump
13	"	1005	"	"	Waste Pile	Leachate from base of Waste Pile
14	"	1014	"	"	Decontamination Pad	unbermed Concrete Pad
15	"	1027	"	"	Oil Recovery Facility	East side - looking north
16	"	1027	"	"	"	West side - looking north
17	"	1038	"	"	Ponds 6&10/Drum Storage	Looking east - Weigh Station
18	"	1038	"	"	"	looking Southeast - field
19	"	1045	"	"	Sanitary WWTP	Underground treatment tanks
20	"	1046	"	"	Old FAT 2/Pump House 2	Secondary Containment and Pump House
21	"	1057	"	"	West Side of Waste Pile	Leachate from Waste Piles
22	"	1058	"	"	Closure Cell	Southeast half from northeast Corner
23	"	1058	"	"	Closure Cell	northwest half from northeast Corner
24	"	1111	"	"	Pond 12	Southwest half from northwest Corner
25	"	1111	"	"	Pond 12	Northeast half from northwest Corner

Notes: (1) Express Time in 24 hour clock notation; (2) Focal Length is of lens used.

Signature of Photographer [signature]

JE JACOBS ENGINEERING

RECORD OF PHOTOGRAPHS Roll #3

Film Type Kodacolor
ASA Number 200

Project Code 10-E054-00

PHOTO NO.	DATE	TIME	FOCAL LENGTH	WEATHER CONDITIONS	LOCATION	DESCRIPTION OF PHOTOGRAPH
1	5/9/90	1122	35mm	Cloudy	Pond 11	northeast half from northwest corner
2	"	1122	"	"	Pond 11	Southwest half from northwest corner
3	"	1122	"	"	Pond 11/Pond 12	Dike between Ponds 11 & 12
4	"	1138	"	"	Tanks W-3 and W4	Soil excavation beneath tanks
5	"	1138	"	"	Tanks W-7 and W-5	Excavation at W-7, removal of W-5
6	"	1142	"	Partly Cloudy	Northwest Landfarm	West half of landfarm area
7	"	1151	"	"	Waste Oil Tank	1000 gal Tank w/ gravel berm
8	"	1154	"	"	North Unloading facility Lot	Containerized waste on pavement northwest corner
9	"	1159	"	"	North Unloading facility lot	Waste rolloff boxes on east edge of pavement
10	"	1204	"	"	"	"
11	"	1209	"	"	South Landfarm Area	looking west from Old Sampling Bay
12	"	1558	"	"	Truck Unloading Cesspit	Manhole for Cesspit
13	"	1607	"	"	Maintenance Bldg Cesspit	Hose hookup for Cesspit
14	"	1616	"	"	Hay Mill Area	Pug mill
15	"	1627	"	"	Borrow Pit 2	east side from north
16	"	1627	"	"	Borrow Pit 2	center from north
17	"	1627	"	"	Borrow Pit 2	west side from north
18	"	1628	"	"	Meyer Ditch	Outlet gate north side of facility
19	"	1636	"	"	ORF Storage Bldg	Corrosion at northeast corner
20						
21						
22						
23						
24						

Notes: (1) Express Time in 24 hour clock notation; (2) Focal Length is of lens used.

Signature of Photographer [signature]

RCRA FACILITY ASSESSMENT (RFA)
CHEMICAL WASTE MANAGEMENT, INC.
VICKERY, OHIO
OHD 020 273 819

INTRODUCTION

Jacobs Engineering group Inc. (Jacobs) was subcontracted by the U.S. EPA through Metcalf & Eddy to perform the RFA at the Chemical Waste Management Inc. Vickery Facility (CWM-V) located at 3956 State Route 412, Vickery, Ohio, 43464. Jacobs conducted a Visual Site Inspection (VSI) at the facility on May 8 and 9, 1990 to verify the condition of these units and to identify SWMUs and Areas of Concern that were not found during the Preliminary Review. At the end of the VSI 45 SWMUs and 5 AOCs were identified (Table 1).

GENERAL INFORMATION

CWM-V currently operates as a treatment, storage, disposal facility for liquid hazardous wastes. The wastes are stored and treated in above ground tanks, filtered, blended, and disposed of by deep well injection through four Class I injection wells. The injection wells are regulated under a separate authority. The facility is located in a rural area, and is bounded, except for a highway on one side, by active farms, with three scattered residences within 1/2 mile. The unincorporated community of Vickery lies 2 miles to the northeast, and the cities of Clyde and Fremont lie 4 miles to the south and 6 miles to the west, respectively. The facility property encompasses 437 acres. The facility operations are conducted on 97 acres and the remainder is rented out as farmland.

Historically, the facility has handled aqueous hazardous wastes (mostly acids) and waste oils. These two waste types were treated together in twelve large surface impoundments at the facility. The oil was skimmed, graded, and resold. The aqueous waste was deep well injected. These waste disposal practice continued until 1983.

Remnants of the previous waste handling process are still observed at the facility today. Ponds 11 and 12 are inactive but have not been closed. Ponds 4, 5, and 7 have been drained and excavated. The excavated sludge has been fixed and deposited in a large waste pile. The Oil Reclamation Facility was also removed to the Waste Pile. The Waste Pile has been landfilled in the TSCA/RCRA Closure Cell located where Ponds 4, 5, and 7 once were.

CWM-V currently receives a large variety of liquid hazardous wastes. The waste type can best be classified as waste pickle liquors (dilute hydrochloric, sulfuric and chromic acids), hydrofluoric and nitric acid wastes, caustic wastes, neutral waters (organic waste waters), and other aqueous wastes generated onsite (Waste Pile leachate, water from Ponds 11 and 12). In the future CWM-V hopes to also treat and dispose of oil wastes, slurries and drummed wastes. These wastes would be handled at the proposed Container Handling Facility. CWM-V will not accept for treatment at the facility radioactive wastes, infectious wastes, explosive or shock-sensitive wastes, air-reactive wastes, water-reactive wastes, compressed gases, reactive wastes that generate dangerous quantities of toxic or explosive gases when acidified, bulk ignitable wastes, bulk wastes containing >5% VOCs, or wastes that the General Manager deems cannot be properly or safely managed at the facility.

All hazardous wastes received and managed by the facility are delivered by truck. The truck unloading facility consists of: truck unloading and wash building; sand interceptors; sump and sump tanks; waste head-gas scrubber; and solids handling unit. A broad range of organic and inorganic liquids are handled by he truck unloading facility. The waste is offloaded in one of three unloading bays and flows into a sump. It then flows to and through one of four sand interceptor boxes and into one of four waste receiving tanks (V-Tanks). The Drum Storage Pad handles the solids separated from the wastes in both the sand interceptors and the hydrocyclones, which remove solids from the storage and treatment tanks not removed by the sand interceptors.

RELEASE PATHWAYS

Soil/Groundwater

The potential for releases to soil and groundwater at CWM-V vary depending on the nature of the SWMU. SWMUs with adequate secondary containment have a low potential for releases to soil and groundwater. However, before the mid-1980s most SWMUs at CWM-V did not have adequate secondary containment and releases to the soil were not uncommon.

Most of the medium-size historical releases (50 to 5,000 gallons) resulted from failures of the PVC waste transfer lines which carry liquid waste between surface impoundments, tanks, filter buildings and pumphouses. These releases probably impacted the soil but had little effect on the groundwater because of the low permeability of the clay soul. Many of the releases were treated with lime and the contaminated soils removed.

The unlined surface impoundments have had the greatest impact on the soil and groundwater at the site. The increased hydraulic head when the surface impoundments were filled with liquid wastes contributed to deeper and more pervasive contamination of soil beneath the surface impoundments. Although several feet of contaminated clay were removed from Ponds 4,5 and 7 during closure, additional contaminated soil may remain. This is because PCBs, a relatively immobile contaminant, was apparently used to assess the soil removal, rather than using more mobile volatile organics or chromium. Contaminated soils in the other closed surface impoundments also were probably not adequately remediated.

The surface impoundments have impacted the shallow groundwater in the lacustrian clay unit. Waste constituents found in the shallow monitoring wells include volatile organic compounds and chromium. The deeper bedrock aquifer may also be impacted but the data is not conclusive. Because the clay has a low permeability and the bedrock has a high permeability, any contaminants migrating to the bedrock aquifer may be quickly diluted.

While the operation of the Class 1 underground injection wells is regulated under a separate authority, they are considered land disposal units under the Resource Conservation and Recovery Act (RCRA) and therefore subject to Corrective Action. The 4 active injection wells and 3 inactive ones have been added to the SWMU list in Table 1.

Surface Water

Several large releases of liquid hazardous waste to both Little Raccoon Creek and Meyers Creek have been documented. In 1979 a spill of up to 96,000 gallon of hazardous waste from the Pond 7/Pond 11 transfer line reached Meyers Creek. The waste was reportedly pumped out. On March 3, 1986 approximately 75,000 gallons of Waste Pile leachate was accidently released to Little Raccoon Creek through gate G-1 at the Leachate Retention Pond. Subsequent testing of the creek water showed little contamination present. Many other smaller releases and possible releases have been recorded. Due to the nature of the wastes, predominantly acids, detection of historic releases to surface water should be made by analyzing sediments for total metals, PCBs, and semi-volatile organics.

Air

Several releases to air and many citizen's complaints of foul-smelling odors emanating from the facility have been documented. Early complaints of foul odors resulted from treatment of odorous pharmaceutical wastes (phenolics and other organics) in surface impoundments. These wastes were later treated in the W-Tanks at the Old Tank Farm. On December 9, 1980, the cyanide reactor at the Oil Reclamation Facility blew up. 5,000 gallons of cyanide waste was released to the air, although CWM-V maintains the cyanide had completely reacted and was harmless. Several releases of NO_x gases from surface impoundments due to inadvertent mixing of reactive wastes have been documented. Particulate and gaseous releases occurred from the mixing of lime with sludges during Ponds 4, 5 and 7 closure activities. NO_x have also been released from the Waste Head-Gas Scrubber. During the VSI, acidic odors were noted downwind of Ponds 11 and 12. These odors were very strong at the edge of the Ponds.

Subsurface Gas

There is a low potential for generation and migration of subsurface gases at the facility. This is due to the types of wastes handled, predominantly acids, and the low permeability of the natural clay soils.

CONCLUSION

There is sufficient evidence of past and potential release to warrant the implementation of Corrective Action at the Chemical Waste Management facility in Vickery, Ohio. The U.S. EPA recommends that a RCRA Facility Investigation (RFI) be performed at this facility in light of the historical lack of secondary containment, contaminated soils and documented releases of contaminants to the environment. In addition to the SWMUs listed in the Visual Site Inspection Report, CWM-V will also investigate through the RFI all underground injection wells both currently used and closed wells. The suggested Further Actions in the VSI report have been expanded in RFA.

Table 1
SUMMARY OF SUGGESTIONS FOR FURTHER ACTION

The following is a summary of suggested further actions for SWMUs and Area of Concern located at the Chemical Waste Management, Inc. Facility in Vickery, Ohio.

Unit Number/ Letter	Unit Name	Suggested Further Actions
1	Pond 1	If monitoring well L-19 is determined to be defective it should be replaced. Continue groundwater assessment monitoring to evaluate migration of contaminants from Pond 1.
2	Pond 2	Continue groundwater assessment monitoring to evaluate migration of contaminants from SWMU.
3	Pond 3	Continue groundwater assessment monitoring to evaluate migration of contaminants from Pond 3.
4	Pond 4	The discharge from the capillary drainage system to the turnpike ditch should be sampled and analyzed for VOCs, semi-volatiles, pesticides/PCBs, and total metals. This discharge should be under permit. Groundwater assessment monitoring should continue to evaluate migration of contaminants from beneath Pond 4.
5	Pond 5	The discharge from the capillary drainage system to the turnpike ditch should be sampled and analyzed for VOCs, semi-volatiles, pesticides/PCBs, and total metals. This discharge should be under permit. Groundwater assessment monitoring should continue to evaluate migration of contaminants from beneath Pond 5.

6	Pond 6	Pond 6 must undergo formal RCRA closure including installation of post-closure monitoring wells. These monitoring wells should be incorporated into the current groundwater assessment monitoring program to evaluate migration of contaminants from the SWMU.
7	Pond 7/Pond 8	Meyers Creek sediments should be sampled for semi-volatiles, pesticides/PCBs, and total metals. The discharge from the capillary drainage system should be sampled and analyzed for VOCs, semi-volatiles, pesticides/PCBs, and total metals. This discharge should be under permit. Groundwater assessment monitoring should continue to evaluate migration of contaminants from beneath Pond 7.
8	Pond 9/Wet Well	Pond 9 and the Wet Well must undergo formal RCRA Closure including installation of post-closure care monitoring wells. These monitoring wells should be incorporated into the current groundwater assessment monitoring program to evaluate migration of contaminants from the SWMU.
9	Pond 10	Pond 10 must undergo formal RCRA closure including installation of post-closure care monitoring wells. These monitoring wells should be incorporated into the current ground water assessment monitoring program to evaluate migration of contaminants from the SWMU.

10	Pond 11	Monitoring wells L-20, L-21, L-22, L-28, L-34, and L-35 should be sampled for VOCs, semi-volatiles, and total metals. Meyers Creek sediment should be sampled for VOCs, semi-volatiles, pesticides/PCBs, and total metals. Proceed with closure of the pond and post-closure monitoring, if required, as soon as possible.
11	Pond 12	Monitoring wells L-22, L-29, L-31, L-32, and L-33 should be sampled for VOCs, semi-volatiles, and total metals. Proceed with closure of the pond and post-closure monitoring, if required, as soon as possible. Soil sampling should be performed at site of 1/24/84 spill between Pond 12 and the access road.
12	North Landfarm	Soil by the telephone pole and beneath in vegetated areas should be sampled for semi-volatiles, pesticides/PCBs, and total metals.
13	East Landfarm	Sampling of soil and sediment for semi-volatiles, pesticides/PCBs, and total metals.
14	South Landfarm	Sampling of soil and sediment for semi-volatiles, pesticides/PCBs and total metals.
15	Oil Reclamation Facility	Further soil sampling may be necessary.
16	Waste Pile	Ultimate disposal of waste pile materials should proceed as quickly as possible. Soil sampling for 40 CFR 261 Appendix IX contaminants should be performed.
17	Leachate Retention Pond	Close Waste Pile and Retention Pond as soon as possible. Little Raccoon Creek sediments should be sampled for semi-volatiles, pesticides/PCBs, and total metals. Install monitoring wells L-17, L-18, and L-25 and sample groundwater or VOCs, semi-volatiles, pesticides/PCBs, and total metals.
18	Old Tank Farm	CWM will try to clean-close tanks based on approval of soil data submitted to OEPA. No further action is required.

19	Old Drum Storage Pad	Soil sampling may be necessary.
20	Lab Waste Tank	Soil sampling is necessary.
21	Truck Unloading and Washing Facility	No further action is required.
22	Grit Filters (aka Gravity Filters, Sand Interceptors)	No further action is required.
23	Waste Receiving Tanks (V-Tanks)	No further action is required.
24	Waste Head-Gas Scrubber	No further action is required.
25	New Tank Farm	No further action is required.
26	T-Tank Pump House	No further action is required.
27	Filter Building No. 1	Soil sampling beneath and around building is necessary.
28	Sluice Pit	Sample soils outside of steel berm for semi-volatiles, pesticides, PCBs, and total metals. This unit should be closed under RCRA as it is no longer in use.
29	Filter Building No. 2	Soil sampling beneath and around building is necessary.
30	Filtered Acid Tanks: FAT-A, FAT-B, FAT-C (aka FAT-1, FAT-6)	It is unlikely that soil sampling the location of the 50-gallon spill would indicate contamination present. However soil sampling in this area may be necessary.
31	Filtered Acid Tank, FAT-3	Soil sampling beneath and around the FAT-3 is necessary.
32	Pump House 3	Soil sampling beneath and around the SWMU is necessary.
33	Filtered Acid Tank, FAT-1, (aka FAT-6)	No further action is required.
34	Pump House 1 (aka Pump House 6)	No further action is required.

35	Filtered Acid Tank, FAT-5	No further action is required.
36	Pump House 5	No further action is required.
37	Filtered Acid Tank, FAT-2	No further action is required.
38	Pump House 4 (aka Pump House 2)	No further action is required.
39	Old FAT-2 Containment	No further action is required.
40	Pump House 2	No further action is required.
41	Drum Storage Pad(90-day)	No further action is required.
42	Waste Lube Oil Tank	Analyze waste oil for TC wastes, assess permeability of gravel berm.
43	Sanitary Wastewater Treatment Plant	No further action is required.
44	Truck Unloading Facility Cesspit	No further action is required.
45	Maintenance Building Cesspit	No further action is required.
46	Injection Well IW-2	Soil sampling may be necessary.
47	Injection Well IW-4	Soil sampling may be necessary.
48	Injection Well IW-5	Soil sampling may be necessary.
49	Injection Well IW-6	Soil sampling may be necessary.
50	Closed Injection Well IW-1	Soil sampling may be necessary.
51	Closed Injection Well IW-1AM	Soil sampling may be necessary.
52	Closed Injection Well IW-3	Soil sampling may be necessary.

List of Areas of Concern

Unit Number/ Letter	Unit Name	
A	Maintenance Tanks	Concrete vaults should be constructed around all tanks which currently do not have them.
B	North Parking Lot Truck Unloading Facility	Soil sampling may be necessary where drums and rolloff boxes were stored south of the Drum Storage Pad (90-day).
C	Hay Mill Staging Area	No further action is required.
D	Borrow Pit 1	Sample surficial soil beneath the debris pile for PCBs and Total Metals. Sample sediment at north side of Borrow Pit for PCBs and Total Metals. Sample Meyers Creek sediment for PCBs and Total Metals.
E	Borrow Pit 2	No further action is required.

5HR-12

AUG 05 1988

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Fred G. Nicar
Chemical Waste Management, Inc.
3956 State Route 412
Vickery, Ohio 43464

Re: Failure to Submit an
Assessment Plan

Dear Mr. Nicar:

On July 6, 1988, the United States Environmental Protection Agency (U.S. EPA) received the final set of analysis results from your April 1988 sampling event. The date stamped on the cover letter to this final set of results shows that Chemial Waste Management (CWM) received these results on June 29, 1988. According to Paragraph H(12) of the April 5, 1985, Consent Agreement and Final Order (CAFO) between CWM and U.S. EPA, CWM must submit an assessment report based on the above analysis as described in 40 CFR 265.93(d)(5) within thirty (30) days after receiving the final analytical results. Since this thirty day time period has lapsed and U.S EPA has not yet received CWM's assessment report for the April 1988 sampling event, CWM is in violation of the CAFO.

According to Paragraph O of the CAFO, if U.S. EPA believes that CWM has failed to comply with the requirements of Paragraph H of the CAFO, U.S. EPA shall notify CWM of the alleged failure and shall provide CWM fifteen (15) days to remedy the alleged failure. If CWM fails to remedy the alleged violation of the CAFO within fifteen (15) days from the notice of the violation, CWM shall pay stipulated penalties, according to the schedule in Paragraph O, from the date of violation.

Please be advised that U.S. EPA considers CWM to be in violation of Paragraph H of the CAFO and requests a written response that addresses these issues within fifteen (15) days of receipt of this letter. Failure to remedy these violations within fifteen (15) days will be grounds for the assessment of stipulated penalties against CWM.

If you have any questions concerning this matter, please contact Craig Liska of my staff. His phone number is (312) 886-4444.

Sincerely yours,

Sally K. Swanson, Acting Chief
RCRA Enforcement Branch

cc: Michael Savage, OEPA-CO

bcc: Jerry Lenssen, RPB
Tom Mintz, ORC

5HR-12:CLISKA:fharris:6-4444:8/4/88 CW

UNITED STATES POSTAL SERVICE

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- Complete items 1, 2, 3, and 4 on the reverse.
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- Endorse article "Return Receipt Requested" adjacent to number.

RETURN TO

U.S.MAIL

PENALTY FOR PRIVATE USE, $300

VICKERY, OH AUG 9 AM 1988 43464

Print Sender's name, address, and ZIP Code in the space below.

Craig Liska (5HR-12) RCRA ENF. BRANCH

UNITED STATES OF AMERICA
ENVIRONMENTAL PROTECTION AGENCY
230 S. DEARBORN
CHICAGO IL 60604

	TYP.	AUTH.	IL/IN TECH. ENF. SEC.	MI/WI TECH. ENF. SEC.	OH/MN TECH. ENF. SEC.	IL/MI/WI ENF. PROG. SECTION	IN/MN/OH ENF. PROG. SECTION	RCRA ENF. BR. CHIEF	A.D.D.	D.D.
INIT. DATE	8/5/88							JDB 8-5-88		

In lieu of yellow tissue

D1.4

Report to

Chemical Waste Management

May 1985

Effectiveness of the Environmental Management Systems at the Ohio Operating Facilities

Arthur D. Little, Inc.
Center for Environmental Assurance

OHD 020 273 819

This report was prepared by Arthur D. Little, Inc., for the account of Chemical Waste Management. The material in it reflects Arthur D. Little's best judgment in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third party. Arthur D. Little accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this report.

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I. EXECUTIVE SUMMARY

Arthur D. Little, Inc., was asked by Chemical Waste Management to independently audit the effectiveness of key elements of the environmental management systems implemented by Chemical Waste Management at its operating facilities in Ohio. The scope of our evaluation included the environmental compliance management system, the environmental audit program, and the employee reporting mechanisms at the four operating facilities located in Ohio.

It is important to understand that the Environmental Management Department at Chemical Waste Management is a relatively new organization and that many of the environmental management programs that are being established by Chemical Waste Management for its Ohio operating facilities are still undergoing development or refinement. It is also important to recognize that there are relatively few established measurement standards for evaluating the effectiveness of environmental management systems. It is in this context that our evaluation has been made.

On the basis of our evaluation and our general familiarity with environmental management systems in place at other industrial facilities involved in the treatment, storage, and disposal of hazardous waste, we believe that the environmental management programs in place or currently under development by Chemical Waste Management for its Ohio facilities provide an appropriate framework for effective environmental management. During our investigation, we noted that many elements of an effective environmental management system are in place. Other important elements are either undergoing implementation or are in the planning and development stage.

This report provides our assessment of the current effectiveness of the environmental management systems for Chemical Waste Management's operating facilities in Ohio; describes areas that, in our judgment, represent weaknesses and limitations; and presents our specific recommendations both for addressing identified weaknesses and for further improving environmental management effectiveness.

II. OBJECTIVE AND APPROACH

Arthur D. Little, Inc., was asked by Chemical Waste Management to independently audit the effectiveness of key elements of the environmental management systems implemented by Chemical Waste Management at its operating facilities in Ohio. The scope of our work consisted of an evaluation of the environmental compliance management system, environmental audit program, and employee reporting mechanisms implemented by Chemical Waste Management at its four operating facilities in Ohio: Vickery, Fremont, the Evergreen landfill, and Solvent Resource Recovery.

Our approach to this assignment included:

- Interviews and discussions with key management and staff within Chemical Waste Management, including the President, managers and staff of the Environmental Management Department, the Environmental Legal Counsel responsible for legal issues at the Ohio facilities, and managers and key staff at each of the four facilities.

- Interviews and discussions with key staff within Waste Management, Inc.'s, Environmental Management Department (including managers and staff responsible for the environmental audit program and environmental operations).

- Site visits to the four operating facilities.

- In-depth, on-site discussions with the Compliance Officer, District Engineer/Environmentalist, and Regional Safety Manager responsible for Chemical Waste Management's Ohio operating facilities.

- Review of relevant documents made available to us by Chemical Waste Management, including accountability descriptions, internal procedures, and environmental audit and other internal reports, regarding the employee compliance reporting system.

Our review did not include conducting a detailed independent environmental compliance audit and our results should not be interpreted as an assessment of the current compliance status at the Ohio operating facilities. Rather, our review consisted of an examination and evaluation of the design and implementation of the environmental management systems for Chemical Waste Management's Ohio facilities.

III. ENVIRONMENTAL MANAGEMENT SYSTEMS FOR THE OHIO OPERATING FACILITIES

The scope of our assignment included the environmental compliance management system, the environmental audit program, and the employee environmental compliance reporting mechanisms implemented by Chemical Waste Management at its Ohio operating facilities. This section of our report briefly describes these management systems.

A. Environmental Compliance Management System

The principal responsibility for environmental compliance is assigned to the site managers at Chemical Waste Management's operating facilities. The site managers are assisted by their own staffs and by headquarters and regional support groups.

The Environmental Management Department within Chemical Waste Management was formed in 1983 to provide management direction and oversight, additional staff expertise and resources, and environmental compliance management support. Regional and district engineers are assigned by Chemical Waste Management's Environmental Management Department to provide support to site management in permitting and other priority areas as established by the Environmental Management Department or requested by site or region management. Other key components of the environmental compliance management system include the Compliance Officer Program and senior management's review of the environmental compliance status.

A Compliance Officer Program was initiated by Chemical Waste Management in 1983. The objective of the program is to independently identify issues at the operating facilities related to compliance with applicable federal, state, and local environmental regulations and conformance with all Chemical Waste Management/Waste Management, Inc., environmental policies and procedures. The Environmental Compliance Officers are based in the field but organizationally report directly to Chemical Waste Management's Manager of Environmental Compliance. An Environmental Compliance Officer, based at Vickery, is responsible for overseeing compliance at the four operating facilities included in the scope of our assignment.

The activities of the Environmental Compliance Officers include:

- Monthly site inspections
- Facility permit reviews
- Review of status of compliance orders
- Site plan and records reviews
- Compliance checks with internal policy and procedures
- Manifest compliance checks
- System (or waste tracking) checks
- Participation during regulatory agency inspection
- Non-WMI facility use decision reviews
- Non-WMI Lab Packer certifications
- Oversight during groundwater monitoring activities
- Off-site operations plan and pre-bid project reviews
- Presentation of regulatory training courses

Results of the above activities are reported on a monthly basis to Chemical Waste Management management via legal counsel. The Manager of Environmental Compliance, along with the Environmental Compliance Coordinator, provides management with periodic environmental assessments of a region's major facilities, recommendations for variance and/or interpretation of internal policy and procedures, interpretations of new regulations, inventory of non-Waste Management, Inc., facilities approved for Chemical Waste Management use, and a mechanism for the transfer of information regarding common environmental compliance issues.

In addition, senior management of Chemical Waste Management conducts Monthly Operating Reviews and Quarterly Operating Reviews for each of the three Chemical Waste Management regions, including the northern region which encompasses the Ohio facilities. During these meetings, senior management discusses the environmental status with facility management and the Environmental Compliance Officer.

Environmental performance is a major determinant of a facility manager's annual bonus.

B. Environmental Audit Program

An environmental audit program was established in 1983 by Waste Management, Inc. This corporate-level program is housed in the corporate Environmental Management Department and is managed by the Audit Program Supervisor who reports to the Director of Environmental Compliance. There are seven full-time environmental auditors, each with technical and regulatory expertise.

The purpose of the program is to provide management with information on the compliance status at company-operated hazardous waste treatment, storage, disposal, and transfer facilities, and sanitary landfills in North America. A secondary objective of the program is to identify non-compliance situations to site management and to track corrective actions. The stated goal of Waste Management, Inc.'s environmental audit program is to conduct annual audits of all Chemical Waste Management sites.

Waste Management, Inc., has developed internal procedures for conducting environmental audits. These audit procedures have been developed as specific guidelines for the auditors to follow in conducting environmental audits of Waste Management, Inc.'s facilities. They include questionnaires and "test" procedures to assess the site's compliance status. These audit procedures incorporate regulatory requirements and corporate policies and procedures. Audits can vary in size and scope depending on site operations; audit procedures are oriented around facility activities. Audit procedures, as discussed herein, are regarded by Waste Management, Inc., as "company confidential" and were disclosed to Arthur D. Little pursuant to a contractual confidentiality agreement.

Two written reports are prepared after each audit: the Audit Report (which includes the Scope, Background, and a detailed listing of audit findings) and a Summary Report for senior management (a brief summary of significant exceptions). Both reports are issued simultaneously.

Each site is required to develop an action plan that addresses each finding in the audit report and submit the action plan to the Audit Supervisor within 60 days of the audit. The auditor-in-charge tracks the site's action plan monthly by telephone until all actions are reported as completed.

C. Employee Reporting Mechanisms

A number of employee environmental compliance reporting mechanisms are in place at Chemical Waste Management's Ohio operating facilities. We observed open, informal channels of communication at each operating facility. Site personnel are encouraged to talk to the site manager, their immediate supervisor, or the Environmental Compliance Officer on any matters of concern. Monthly safety meetings also provide a vehicle for employees' concerns to be heard.

In addition to these mechanisms, in 1983, Waste Management, Inc., established a Hot Line Program for employees who have any questions or concerns regarding environmental compliance issues. The Hot Line is, in many respects, intended to be a vehicle of last resort and employees are encouraged (but not required) to raise issues through normal supervisory channels first. The Hot Line is connected to a dedicated telephone line that is equipped with a telephone answering device/recorder to provide coverage after hours. When a Hot Line call is received, the Hot Line Manager completes a form and initiates contact with appropriate people within the company to address the issue or concern. The Hot Line Manager maintains liaison with the caller until the issue is resolved. A charter describing the mission and intent of the Hot Line was issued in January 1984 to all managers and a notice describing the Hot Line was sent to all employees.

IV. ARTHUR D. LITTLE'S ASSESSMENT

A. Overall Assessment

On the basis of our discussions with key management and staff at Chemical Waste Management and Waste Management, Inc., and visits to Chemical Waste Management's four Ohio operating facilities, we believe that Chemical Waste Management is genuinely committed to developing an effective environmental management system. Chemical Waste Management has made significant strides in the development of an effective environmental management system for the Ohio operating facilities. In addition, the environmental audit program developed by Waste Management, Inc., is a well-designed audit program that appears to be functioning smoothly. On the basis of our evaluation and our general familiarity with environmental management systems in place at other industrial facilities involved in the treatment, storage, and disposal of hazardous waste, we believe that the environmental management programs in place or currently under development by Chemical Waste Management for its Ohio facilities provide an appropriate framework for effective environmental management. During our investigation, we noted that several elements of an effective environmental management system are in place. Other important elements are either undergoing implementation or are in the planning and development stage.

The details of our evaluation of Chemical Waste Management's environmental management system for the Ohio operating facilities are presented below.

B. Environmental Compliance Management System

In our judgment, an effective environmental compliance management system contains the following key elements:

- Environmental policy clearly defined and understood throughout the corporation.
- Top management commitment and support.
- Environmental roles, responsibilities, and accountabilities clearly defined and understood.
- Regulatory and company requirements understood.

- Facility-level environmental management systems in place and functioning to manage compliance, identify significant discrepancies, initiate corrective action, and document performance.

- Environmental management oversight and verification of environmental status.

- Environmental status communicated to management.

Chemical Waste Management's Environmental Management Department has undergone significant organizational change and development during the past two years. Given this development, we have been impressed with the enthusiasm, concern, and efforts to comply with environmental regulations and with the plans that have been developed to achieve an effective environmental management compliance system. The company's commitment to achieving and maintaining environmental compliance is clear and is widely understood throughout the Ohio operating facilities. Site personnel at each of the four Ohio operating facilities generally understand and acknowledge their roles in environmental compliance management. We also noted many and frequent examples that, once a decision is made to correct deficiencies, significant and decisive action is taken. Furthermore, internal policies and procedures provide in-depth guidelines and instructions for achieving compliance with RCRA.

However, we observed some limitations in the environmental management systems implemented at Chemical Waste Management's Ohio facilities. There is still some ambiguity about certain aspects of key environmental roles, responsibilities, and accountabilities relating to the Compliance Officer, Region Environmentalist, and site staff in the management of compliance activities. In many instances, facility management and staff tend to look heavily to the Environmental Compliance Officer and other members of Chemical Waste Management's Environmental Management Department for many aspects of day-to-day on-site environmental management.

Site management and staff displayed varying degrees of knowledge about environmental regulations and requirements. While an extensive environmental training program is soon to be implemented, there appears, at present, to be no systematic method of ensuring that environmental requirements are known by those whose duties require that they understand regulatory and company environmental requirements.

C. Environmental Audit Program

In our judgment, an effective corporate environmental audit program would contain the following key elements:

- A formal, documented program--with procedures and guidelines.
- Purpose and scope of program well defined and communicated, both up and down the organization.
- Supported by top management.
- Sufficient number of qualified and trained auditors, following established protocols or guidelines.
- Audit procedures that include a mix of inquiry, observation, and verification testing.
- Documentation of compliance, as well as non-compliance observations.
- Formal audit reports distributed to the appropriate management channels.
- Repeat findings decrease over time.
- Status of the program periodically reported to top management.
- Formal follow-up mechanisms in place to ensure correction of noted deficiencies (either as part of audit program or environmental compliance management program).

In our opinion, the environmental audit program implemented by Waste Management, Inc., is generally consistent with the state of the art of corporate environmental audit programs. The program has the support of top Waste Management, Inc., and Chemical Waste Management management. It has a well-defined purpose, scope, and audit approach and is generally viewed as beneficial by both corporate and facility management. The audits can be characterized as in-depth, focusing on the appropriate areas and generally following sound auditing techniques. Audits are documented in working papers and audit results are reported via written audit reports. These reports contain a clear and appropriate discussion of findings and exceptions and are distributed to appropriate management.

In our opinion, the only major weakness of Waste Management, Inc.'s environmental audit program is that current staffing is not consistent with the internal goals of annual audits of all Chemical Waste Management facilities and major solid waste sites. One remedy for this weakness is to increase the audit program staffing. Another, however, is to reduce the frequency-of-audit goals to be more commensurate with the present staffing. Such a reduction would not be inconsistent with accepted practice; many leading corporate environmental audit programs conduct audits of major facilities on less than an annual frequency.

Although the audit frequency/audit staffing inconsistency is the only major weakness that we identified, we also identified some areas for further enhancing the effectiveness of the program. We noted in our review of the audit working papers that, while any non-compliance situations during an audit are generally documented in some detail, there tends to be relatively little documentation of situations found by the auditors to be in compliance. Additionally, the auditors sometimes focused their selection of site records for review and testing on dates close to the date of the on-site audit (rather than spreading them across the period of review), thus creating a snap-shot of the compliance status within a narrow window of time instead of an indication of compliance over an extended period.

D. Employee Reporting Mechanisms

In our opinion, an effective employee environmental compliance reporting mechanism includes the following characteristics:

- Process clearly communicated to, and understood by, <u>all</u> employees.
- Employees believe that management wants to hear about problems and that process will produce positive results.
- Program is functioning:
  - Complete coverage at all times.
  - Prompt acknowledgement of employee reports.
  - Appropriate follow-up.

Based on our site visits and discussion with facility staff, there appear to be many available, effective channels for employee communication at the Ohio facilities. Facility personnel have several direct communication channels to the site manager, supervision, and even the Environmental Compliance Officer. They generally indicated a belief that facility and corporate management were interested in their views and concerns. In addition, monthly safety meetings provide a formal mechanism for employees to voice any environmental concerns.

A Hot Line was established as a vehicle of last resort to provide employees with direct, confidential access to corporate management. While many employees were aware of the Hot Line, understood its purpose, and felt it was a useful vehicle, we found a number of limitations in the program's design and implementation. Awareness of the Hot Line varied widely among those with whom we spoke. In many instances, the initial internal publicity about the establishment of the Hot Line has been the only notification. Furthermore, our tests of the Hot Line found that the recorded message used during off-hours was out of date (it has subsequently been updated) and there were some time lags in Hot Line responses.

V. ARTHUR D. LITTLE'S RECOMMENDATIONS

This section of our report presents our recommendations for addressing identified limitations and for further improving the effectiveness of the environmental management systems for the Ohio operating facilities. Recommendations are grouped according to those that relate to the environmental compliance management system, the environmental audit program, and the employee reporting mechanisms.

A. Environmental Compliance Management System

1. Chemical Waste Management should take additional steps to ensure that the management of the operating facilities take a more active role in managing their compliance activities. Systems are in place and functioning at the facilities to manage environmental activities. However, most of the Ohio facilities place a heavy reliance on Chemical Waste Management's Environmental Management Department personnel (especially the Environmental Compliance Officer) rather than the facility's own supervision for many aspects of their environmental management programs. Consideration should be given to encouraging site managers to appoint an environmental coordinator (or person with explicit environmental management responsibilities) at each site, reporting to the site General Manager. At smaller facilities, this person need not be a full-time environmental coordinator. However, as environmental management is such an integral part of effective site management, the environmental management function should report to, and be accountable to, site management.

2. Expand recordkeeping systems to demonstrate environmental compliance, as well as highlight exceptions and problems to corporate and site management. Corporate oversight and review systems have been developed and implemented for identifying and bringing non-compliance situations to management's attention. To further enhance those systems and increase their effectiveness in meeting corporate objectives, recordkeeping should, in our opinion, be expanded to better document compliance situations.

3. Continue current training plans and conduct the hazardous waste management training for middle managers and supervisors at the earliest possible time. Chemical Waste

Management has developed a comprehensive environmental training program for managers and supervisors. This training is designed to provide training regarding regulatory requirements and the provisions of internal policy and procedures. In order to ensure that facility personnel have a good working understanding of the compliance requirements and their responsibilities in achieving and helping assure compliance, we recommend that this program be completed as early as possible and in no case beyond the September 1985 target date.

B. Environmental Audit Program

We believe Waste Management, Inc., has a well-designed environmental audit program that is generally consistent with the state of the art. We recommend the following action to address the only significant program deficiency noted:

1. Either expand the audit staff or modify the program goal regarding frequency of audits. Waste Management, Inc., has a goal of annual audits at all Chemical Waste Management facilities. Given their goals of audits at other Waste Management, Inc., facilities and the current staffing of the program, we believe that either the goal regarding frequency of audits should be reduced or the audit program staffing level should be increased. Many companies with established audit programs have audit frequency goals on less than an annual basis. Decisions regarding audit frequency may be made on the basis of facility size, inherent risk, or other criteria. Thus, Waste Management, Inc., need not take the steps to add staff to meet their goal, but rather can change the goal to be more consistent with the current staffing level.

2. We also recommend the following additional actions to further enhance the effectiveness of the corporate environmental audit program. (These recommendations should be considered in the context of further fine-tuning an effective audit program; they are not meant to imply shortcomings but, rather, ways to further enhance an already effective program.)

(a) Increase documentation of evidence of compliance. The working papers provide back-up documentation of each audit. They appear to be reasonably complete and appropriate in documenting identified non-compliance situations. However, they appear to contain only very limited documentation on many of the situations that the auditors determine to be in compliance. To further the effectiveness of the program and to better meet audit goals, we recommend documentation of compliance as well as non-compliance situations. Good auditing practice calls for a brief description of the audit procedures undertaken, the results of all audit tests, and the auditors conclusions. Expanding the working papers to include better documentation of satisfactory performance as well as any identified deficiencies will help to provide the desired assurances to management.

(b) Explicitly determine and state in the audit report the period under review and select records for audit testing to ensure a more representative sample of the period under review. As part of the planning of each audit, a decision should be explicitly made about the time frame that the audit will cover (e.g., the last twelve months, the last six months, the time since the last audit, etc.). Then, auditors should develop audit plans to sample records for review accordingly. We noted a practice to frequently select records for review that were relatively close to the date of the on-site audit with the number of records selected appearing to be relatively small compared to the total population. After identifying what period the audit covers, the auditors should select records that are representative of that time period.

C. Employee Reporting Mechanisms

As described in Section III, a number of effective employee compliance reporting mechanisms are in place. However, in our opinion, the Hot Line needs attention. If the Hot Line is to be continued (there are many effective environmental management programs without Hot Lines), we recommend the following:

1. Update the Hot Line's internal publicity and procedures. The purpose and use of the Hot Line should be communicated to all employees on a regular basis and procedures for responding to Hot Line calls should be kept current. We recommend frequent internal publicity or employee notifications to remind employees of the Hot Line's purpose, intent, and availability. This can also reinforce the company's commitment to environmental compliance and to hearing any environmental concerns or complaints voiced by employees.

It is also important that the program provide consistently responsive coverage. Our tests of the Hot Line coincidentally occurred during the Program Manager's vacation, and there apparently was some confusion on the part of personnel assigned to provide back-up coverage about whether to respond to our "test call." That resulted in some delay in responding to our tests. Based on these limited test calls, we recommend that responsibilities for responding to calls during any absences of the Hot Line Program Manager be clarified. In addition, the recently updated tape recording used for responding to off-hour calls should be kept up to date.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

RECEIVED
AUG 1 2 1983
WASTE MANAGEMENT BRANCH

DATE: August 8, 1983

SUBJECT: Trip Report - Conference with Chemical Waste Management and OEPA re: Vickery, Ohio Facility

FROM: Michael J. Walker
Assistant Regional Counsel

TO: Robert M. Andersen, Chief
Water, Toxics and General Law Branch

On Thursday, July 28, 1983, Dan Banaszek, Jim Brossman and I met with CWM and OEPA to discuss settlement of the TSCA/RCRA violations at the Vickery facility. Bob Styduhar and Rich Shank represented OEPA. Jeffrey Miller and George VanderVelde were present for CWM along with several CWM staff and consultants.

Information Presented

CWM stated that their investigations appear to document that no PCBs are leaving the site; tests have been run on air samples along the site perimeter, surface water flowing from the site and drinking water wells in the area. No PCBs have been detected.

CWM presented several key pieces of information:

1. Report of oil sales since 1979, including customer lists and analysis of oil retained by customers.
2. CWM Proposal for Remedial Action and Envirnmental Control Upgrading. (Developed by Roy F. Weston, a contractor)
3. Lagoon Sludge Analysis for PCBs. (Identified in their submittal as Exhibit I.)
4. Proposed Sludge Remedial Operations. (Identified as Exhibit II.)
5. Site Integrity Analysis. (Identified as Exhibit III.)
6. RCRA Landfill Proposal. (Identified as Exhibit IV.)
7. Proposed Truck Spill Prevention Procedures.
8. Draft Consent Decree.

The cleanup proposal, identified above as number 2, and attached to this memorandum for your reivew, set forth a range of remedial options, projected costs, and implementation times. In addition, a risk assessment was performed by Dr. Ian Nesbit and this is factored in. The options range from removing all material for incineration to on-site disposal.

CWM identified Option 1A as their preferred option. This option, which would cost approximately $2,800,000, would skim all PCB contaminated oils from Ponds 4 and 5, solidify the PCB contaminated sludges remaining in the lagoons, and replace the solidified material into the ponds after they had been cleaned and retrofitted with a leachate collection system. All PCB contaminated rip-rap (rocks) from the lagoons will be considered to be "PCB Articles" and will go to CECOS.

CWM had a consultant from Golden and Associates describe the geology and hydrology of the site. It was alleged that this site is quite similar in physical characteristics to the CECOS PCB landfill in Williamsburg, Ohio. CWM proposes that they would seek an "Annex II" approval for the disposal option. Since it would entail disposal of material contaminated by diluted PCBs and RCRA hazardous waste, they believe it is permissable to process their proposal as both a PCB landfill and an upgraded RCRA closure plan. Factors in favor of an on-site disposal plan appear to be cost and the alleged lowered risk of accidents from transportation off site. Since the geology of the site seems quite similar to CECOS, they see no practicable reason to have their contaminated sludges taken 250 miles to CECOS.

Both Miller and VanderVelde said they would like to proceed expeditiously to negotiate a Consent Decree that embodies the Option 1A proposal. In addition, they are requesting the cooperation of U.S. and OEPA in processing the needed RCRA permits to allow CWM to eliminate the open lagoons. If they can obtain the requisite state and federal permits and approvals, their goal is to have a closed tank storage and processing system operational by 1985. Although no specific figures were given, VanderVelde said that the costs to upgrade the facility to a closed tank system with odor controls would be substantially greater than the projected cleanup costs.

Key Issues To Be Resolved

Option 1A contemplates no off-site removal of PCB contaminated sludges from Ponds 4 and 5. These range in PCB contamination to 250+ppm. CWM and Miller claim that this option is consistent with other PCB cleanup settlements that have been negotiated and cited Aerovox, and Cornell Dublier (Region II) and Metal Bank (Region III). Miller noted that a cleanup to background levels, as USEPA/OEPA propose is not consistent with other PCB decision making, such as the current position of HQ to allow PCBs up to 25ppm in consumer products and Region V's decision to allow PCB capacitors to remain in situ at Westinghouse. I have obtained copies of each of these settlements. They all differ from this situation in that they involve historic contamination, although they generally do represent settlements that seem overly generous.

Given the similar geology of the site, Miller claims that Option 1A exceeds the Aerovox and Cornell Dublier Settlements, particularly since the Vickery facility will have permanent use restrictions on the land. If option 1A is acceptable to US and OEPA, CWM believes they can prepare all necessary permit applications and closure plans within 4 months.

Action needed: EPA needs to carefully assess all proposed options for regional policy consistency and acceptability. Although Miller told me he had reviewed the ALCOA (Atkinson, IL) consent decree, he did not choose to mention it in his discussion of the Aerovox and Dublier settlements. Our position with respect to remedies must be resolved by August 16, when we plan to meet with CWM in Columbus.

Banaszek, Brossman, Bremer and I have met with Mr. Constantelos to brief him on our meeting and the various cleanup options. Constantelos agrees that cleanup Option 1B seems to represent the preferred remedy that U.S.EPA would favor. Option 1B differs from 1A in that synthetic liners would be installed in lagoons four and five at an additional cost of less than $200,000. OEPA does not appear to have any technical objections to the proposal but fears the negative political consequences that on-site disposal represents.

I believe that it is imperative that we proceed to work with CWM to develop the specifics of their proposal. Several critical aspects of the proposal are still unresolved or appear to be in direct conflict. For example, if CWM intends to create a federally approved PCB landfill, why are they proposing to treat the PCB contaminated rocks as "PCB items" and ship them to CECOS?

For the next meeting on August 16, 1983, we will be drafting a tentative written response to the CWM proposal, which should state, in the broadest sense, our understanding that execution of Option 1B must be the subject of an enforceable federal consent decree and that we expect a substantial civil penalty. This letter will also recite the general requirements for obtaining approval for a PCB landfill as well. A copy of the CWM draft Consent Decree is attached to this memorandum.

Please call me if you have any questions.

Attachments (2)

cc: Schaefer
Ullrich
Grimes
Constantelos
Banaszek
Bremer
Brossman
Muno

<u>ATTACHMENT B</u>

CHEMICAL WASTE MANAGEMENT, INC.
PROPOSAL FOR REMEDIAL ACTION AND
ENVIRONMENTAL CONTROL UPGRADING
VICKERY, OHIO FACILITY
July 28, 1983

I. <u>Distribution and Concentration of PCBs</u>.

Analytical data from CWM's analytical consultant, ETC, is summarized in Exhibit I.*/ Levels of PCBs subject to regulatory action are found only in the sludge in Ponds 4 and 5 and the wet well and on riprap on Ponds 5 and 11. Diagrams of PCB levels in Ponds 4 and 5 are included in the <u>Exhibit I</u>.

II. <u>PCB Remedial Action</u>.

A. <u>Oil</u>. Over 500,000 gallons of oil containing PCBs above regulatory action levels have been removed from the site and stored awaiting incineration. Oil removed included both oil in storage tanks at the facility and oil which was skimmed from the surface of the ponds. A small amount of oil continues to rise to the surface of the ponds from which it is skimmed and disposed of in a similar fashion. CWM is proceeding to decontaminate its oil reclamation and storage facilities.

B. <u>Sludge</u>. CWM has examined a number of options for disposal of PCB-contaminated sludge in Ponds 4 and 5 and

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*/ Higher values have occasionally been obtained from non-representative samples.

the wet well. It has examined them with respect to feasibility, time required, risk and cost. Feasibility, time and cost have been assessed by CWM's consultant, Weston. Risk analysis has been performed by CWM's consultant, Clement Associates. A summary of the results are contained in Table I. On the basis of these criteria, CWM proposes to close Ponds 4 and 5 and the wet well in the following manner: drain the aqueous material to the remaining ponds for treatment and disposal; treat the sludge by solidification; install recompacted clay liners in Ponds 4 and 5; install a leachate collection system in the bottom of Ponds 4 and 5; replace the solidified sludge in Ponds 4 and 5; cap, grade and seed. Leachate will be analyzed to determine proper disposal. This proposal is detailed in Exhibit II.

Previous analysis performed on this sludge indicates that before treatment by solidification it fails the EP toxicity test only for chromium, as total chromium. For all other parameters it is non-hazardous even before solidification. CWM expects that after solidification and more discrete chromium analysis the sludge will meet the EP toxicity criteria.

Because of the integrity of the ponds, see Exhibit III, this proposal results in no risk of human exposure to PCBs and qualifies for approval under 40 CFR § 761.75. Indeed, the characteristics of the site are superior to those at the CECOS facility already approved for PCB disposal by Ohio

TABLE I

CONFIDENTIAL

CWM REMEDIAL OPTION SUMMARY (1)(5)
VICKERY, OHIO

Option	Total (10) Costs($)	Implementation Time (Weeks) (8)	Technically Feasible	Incremental Risks (11)
1	2,431,300	63	Yes	Very low
1A(6)	2,836,300	65	Yes	Negligible
1B(7)	3,106,300	71	Yes	Negligible
5(4)	4,381,300	71	Yes	Negligible
2	6,234,200	86	?(9)	Low
4A(2)	7,608,300	61	Yes	Moderate
3	9,908,700	94	?(9)	Low/Moderate
4B(3)	10,170,200	61	Yes	Low/Moderate
6(2)	12,943,000	60	Yes	Moderate/High

+5,000,000 if solidified
4.5 million

(1) Disposal of 58,400 cu. yd of sludges from Ponds 4 and 5.
(2) Disposal of fluid sludges.
(3) Disposal of semi-solid sludges.
(4) RCRA landfill capacity of 300,000 cu. yd; remedial action uses 128,400 cu. yd. Only the cost associated with the remedial activity is included.
(5) Maximize use of CWM staff and equipment for remedial action.
(6) Option 1 plus leachate collection system.
(7) Option 1 plus leachate collection system and synthetic liner.
(8) Construction and remedial operation 16 hours/day, 5 days/week.
(9) Require treatability study.
(10) Note that costs are Weston estimates and may not represent internalized costs of work done within CWM. Nevertheless, they are considered accurate on a relative basis.
(11) Additional to on-site risks resulting from accidents and chemical exposures during remedial work. These risks are expected to be similar in all options and to be minimized by a safety plan.

TABLE 1 (cont.)

GENERAL DESCRIPTION
OF REMEDIAL OPTIONS

Option 1 — use of existing closure plans.

Surface oil from Ponds 4 and 5 will be removed using the existing skim oil truck and pump. Chemical analysis will be performed and the oil disposed of in accordance with its component analyses and applicable regulations. Aqueous phases from these ponds will be pumped through an API-type oil separator, as needed, prior to discharging into active ponds. Floating oils from the separator will be handled similar to the skim oil from the ponds. Sludge from the separator will be pumped to the pug mill for solidification and subsequent refilling into Ponds 4 and 5.

Sludge from Ponds 4 and 5 will be excavated following draining of the aqueous phases and pumped to the pug mill for solidification. The ponds will be cleaned by removing sludges and approximately 6" of clay which forms the side and bottom areas. These materials will be solidified also. All solidified materials will be refilled into Ponds 4 and 5. A cover system will be installed including 3' of compacted clay and 6" of topsoil with seeding. Site grading will minimize surface erosion and precipitation infiltration into the now-closed ponds. PCB-contaminated riprap will be removed from the ponds and disposed of offsite as a solid PCB article.

Ponds 4 and 5 will be handled sequentially, beginning with Pond 4. The method of closure proposed in this option is in accordance with the site Closure Plan regarding use of the pug mill for sludge solidification.

Option 1A

Option 1A is similar to Option 1, except that prior to refilling Ponds 4 and 5 with solidified sludges, the ponds will be equipped with leachate collection systems. Installation of these leachate collection systems involves reworking pond side slopes; recompacting native clay forming the side and bottom areas; and, installing necessary collection pipes, laterals and sumps. Leachate will be collected, treated if necessary, and disposed of by deep well injection.

Option 1B

Option 1B is similar to Option 1A, except that in addition to the leachate collection systems, synthetic liners will be installed in Ponds 4 and 5. As in Option 1A, leachate will be collected, treated if necessary, and disposed of by deep well injection.

Option 2

Option 2 involves two methods of sludge treatment for Ponds 4 and 5. Sludge with PCB concentrations $\geq$ 50 ppm will be sent to a reactor system to chemically and/or thermally break the sludges into two phases: an oily phase and a solid phase. The oil phase is expected to contain the majority of PCBs due to its greater affinity for PCB materials. Following chemical analysis, this oil will likely require disposal offsite. The reactor solids phase will be pumped to the pug mill for solidification and subsequent refilling into Ponds 4 and 5. It is estimated that approximately 50 percent of pond sludges will undergo reactor treatment.

Pond sludges containing < 50 ppm of PCBs will be removed and pumped to the pug mill for solidification similar to Option 1, followed by refilling into Ponds 4 and 5. The pond skim oils, aqueous phases, API separator oil and sludge materials, and riprap will also be handled similar to Option 1.

Option 3

Option 3 is similar to Option 2, except that all sludges from Ponds 4 and 5 will be sent to the reactor treatment system. The solids phase from this treatment will be pumped to the pug mill for solidification, followed by refilling into the ponds. The pond skim oils, aqueous phases, API separator oil and sludge materials and riprap will also be handled similar to Option 1.

TABLE 1 (cont.)

Options 4A and 4B

Options 4A and 4B also involve two methods of sludge treatment for Ponds 4 and 5. Sludges with PCB concentrations $\geq$ 50 ppm will be disposed of offsite; sludges < 50 ppm PCBs will be sent to the pug mill for solidification, followed by refilling into the ponds. The offsite options are: for Option 4A, sludges will be disposed of as liquid or fluid materials; for Option 4B, sludges will be stabilized onsite and disposed of as semi-solid materials.

The pond skim oils, aqueous phases, API separator oil and sludge materials, and riprap will also be handled similar to Option 1.

Option 5 RCRA Landfill

Option 5 is similar to Option 1, except that Ponds 4 and 5 solidified sludges from the pug mill will be placed into a RCRA-type landfill rather than into Ponds 4 and 5. The location of the RCRA landfill may be Ponds 4 and 5, or other suitable locations within the Vickery, Ohio site.

The pond skim oils, aqueous phases, API separator oil and sludge materials, and riprap will also be handled similar to Option 1.

Option 6

Option 6 is similar to Options 4A and 4B, except that Ponds 4 and 5 sludges will be removed for offsite disposal as liquid or fluid materials. Therefore, no onsite solidification and/or reactor treatment of sludges will be required.

The pond skim oils, API separator oil and sludge materials, and riprap will also be disposed of offsite. Draining of the aqueous phases from Ponds 4 and 5 will be handled as in Option 1.

EPA and U.S. EPA. Because this proposal may be accomplished by closure plan upgrading approval by Ohio EPA and U.S. EPA rather than formal permitting, it can be accomplished faster than options involving new facilities and permitting. More extensive on-site options simply cost more with no reduction in risk. Off-site options both cost more and increase risk.

U.S. EPA is presently developing rules for uncontrolled PCB processes at less than 50 ppm pursuant to court order in EDF v. EPA. These processes are considered to produce primarily mono- and diclorobiphenyls. In reporting to the Court on March 31, 1983, EPA indicated it is developing its regulations based upon risk analyses similar to those done for CWM. The non-EPA parties to that case recommended that regulations permit PCB concentrations below 10 ppm in air emissions, 0.1 ppm in water discharges, and 25 ppm in consumer products. (EDF, NRDC, CMA "Recommendation of the Parties for a Final EPA Rule on Inadvertent Generation of PCBs," April 13, 1983.) EPA is using this recommendation as a framework for the regulations. Indeed, "preliminary assessments completed by EPA indicate that in most instances a 25 part per million (ppm) cut off [in consumer products] will result in acceptable levels of risk." (Letter to Don Clay from David Zoll, June 3, 1983.) This same sort of cost-risk/benefit approach is mandated in determining appropriate measures for Superfund cleanups, 40 CFR § 300.68. In situ containment of PCB-contaminated soil has been included in enforcement settlements agreed to by

U.S. EPA, including but not limited to consent decrees with Cornell Dublier Electronics, Inc., New Bedford, Massachusetts; Aerovox, Inc., New Bedford, Massachusetts; and Union Corporation and Metal Bank of America, Inc., Philadelphia, Pennsylvania.

C. Riprap. Some of the riprap is coated with pond surface oil; this coating having a relatively higher concentration of PCBs than the sludge. Because the contaminated riprap is also of a relatively lower volume compared to the sludge, CWM proposes to dispose of riprap coated with PCB-contaminated oil at an approved off-site PCB landfill.

D. Monitoring. CWM will operate and maintain a groundwater and surface water monitoring system designed to detect the migration, if any, of PCBs from closed ponds. If it detects the migration of PCBs in excess of 0.1 ppm, CWM will, within 90 days, submit a plan to prevent such migration and, upon agreement of Ohio EPA and U.S. EPA to the plan, shall implement it.

III. Facility Conversion and Upgrade

CWM proposes to conduct all future receipt, treatment, storage and disposal of hazardous wastes in an enclosed, tank-based system. Because this is a significant facility upgrading, requiring substantial investment, it cannot let bids for or commence construction of these facilities until it has secured the requisite air, hazardous waste and UIC permits. Indeed, it cannot legally proceed with such upgrading without those permits. It will submit applications for those permits within four months after agreement is reached. In the meantime it will proceed with design and other non-capital intensive work, and will complete the system within eighteen months after receiving the necessary permits. The future facilities include construction of a RCRA landfill for disposal of solidified sludges.

IV. Pond Closure.

CWM proposes to close Ponds 12, 11 and 7, in that order. It proposes to convert Pond 12 to a RCRA landfill to dispose of solidified sludges from Ponds 12, 11 and 7 and sludges generated in its new, enclosed storage and treatment system. When this capacity is exhausted, it proposes similar RCRA landfills i" Ponds 11 and 7. CWM's proposal is detailed in Exhibit IV.

There are several constraints in pond closures. Ponds 11 and 12 must be emptied with some symmetry to protect the integrity of the dividing berm. At least one pond must remain in service until replacement facilities are available. Depletion of aqueous material in the ponds is limited by the number and capacity of injection wells and their operating experience. Operating at 96 percent capacity and increased pressure, existing inventory can be depleted -- while injecting rainwater, a reduced amount of casual water, and current business -- within 42 months. Disposal could be accelerated by installation and operation of additional wells and possibly by stimulation of existing wells. If the assumptions on which this schedule is based are met and the requisite permits are issued expeditiously, it will be possible to discontinue receipt of hazardous waste into the ponds by September 30, 1985.

V. Form of Agreement.

CWM attaches as Exhibit V a draft consent decree embodying the above proposals. It is willing to enter 'round-the-clock negotiation to reach agreement after Ohio EPA and U.S. EPA have sufficient time to review this proposal.

EXHIBIT V

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OHIO

UNITED STATES OF AMERICA and STATE OF OHIO, Plaintiffs, v. CHEMICAL WASTE MANAGEMENT, INC., Defendant.	Civ. No. 83 -

CONSENT DECREE

The Complaint in the above-captioned case having been filed herein, and the Plaintiffs, the United States of America for the Administrator of the United States Environmental Protection Agency (hereafter "U.S. EPA"), and the State of Ohio for the Director of the Ohio Environmental Protection Agency (hereafter "Ohio EPA"), and the Defendant, Chemical Waste Management, Inc. (hereafter "CWM"), having consented to entry of this Decree,

NOW, THEREFORE, without trial of any issue of fact or law and without admission by CWM of the facts or violations alleged in the Complaint, and upon consent of the parties hereto, IT IS HEREBY ORDERED, ADJUDGED, AND DECREED as follows:

I.

This Court has jurisdiction over the subject matter herein pursuant to 42 USC §§ 6928, 6972, 7413, 7604 and 9609, and by the Court's pendant jurisdiction over claims derived from a common nucleus of operative fact and has jurisdiction over parties hereto. Venue is proper in this Court.

II.

The provisions of this Consent Decree shall apply to and be binding upon the parties to this action, their agents, assigns and successors in interest.

III.

CWM shall abate air pollution and odor emissions at its facility in Vickery, Ohio (hereafter the "Vickery Facility") by ceasing receipt of wastes into storage and treatment ponds and replacing them with an enclosed storage, treatment and disposal system from which emissions are vented through air pollution control devices, by September 30, 1985, all in accordance with the schedules and specifications contained in the plan attached to this Consent Decree and made a part hereof (hereafter the "Plan").

DEVELOPMENT OF CLOSED STORAGE, TREATMENT & DISPOSAL SYSTEM

IV.

CWM shall commence immediately to close Ponds 4 and 5 and the wet well at the Vickery Facility by draining all

CLOSURE FOR PONDS 4&5

aqueous material from them into the remaining ponds; removing and treating all sludge from Ponds 4 and 5 and the wet well by solidification; installing recompacted clay liners; installing leachate collection systems to serve such Ponds; replacing the solidified sludge in the Ponds; installing clay caps over the Ponds; grading and seeding the caps; performing post closure maintenance; and disposing of leachate, all in accordance with the schedules and specifications contained in the Plan.

Replace Solids into ponds

V.

CWM shall close Ponds 7, 11 and 12 at the Vickery Facility by discharging all aqueous material from them into injection wells located at the facility; removing and treating the sludge in Ponds 7, 11 and 12 by solidification; installing a RCRA landfill in Pond 12; replacing the solidified sludge in the Pond 12 RCRA landfill; installing a clay cap on the Pond 12 RCRA landfill incrementally as it is filled; grading and seeding the cap; performing post closure maintenance; and disposal of leachate, all in accordance with the schedules and specifications contained in the Plan; provided, however, that upon receiving the necessary permits, CWM will utilize the remaining capacity of the Pond 12 RCRA landfill for disposal of sludges generated in on-site treatment and storage. Ponds 7 and 11, after being completely excavated, will be filled with clean fill and closed, but may be considered as sites for RCRA land-

closure of ponds, 7, 11, 12.

A. Remove liquids
B. Solidify wastes
C. Replace into #12, as upgraded.

fills when the capacity of the Pond 12 RCRA landfill is exhausted.

VI.

CWM shall establish and maintain a monitoring system to determine if PCBs are escaping into groundwater or surface water from closed Ponds 4 and 5 or other parts of the Vickery Facility, such system to be established and operated as specified in the Plan. Should such system detect the escape of PCBs in concentrations in groundwater or surface water in excess of 0.1 ppm, CWM shall, within 90 days, submit to the Plaintiffs a plan to prevent such escape and shall implement remedial measures agreed to by the Plaintiffs and CWM in accordance to a schedule agreed to by them.

Site monitoring for PCBs.

VII.

CWM shall not reclaim at or sell waste oil from the Vickery Facility without analyzing each incoming load of waste oil and analyzing each tank from which oil is sold, prior to any sales from such tank, for the concentration of PCBs. No waste oil shall be accepted at the Vickery Facility and no recycled oil shall be sold from the Vickery Facility with concentrations of PCBs greater than those allowed in regulations promulgated by U.S. EPA or Ohio EPA.

Oil reclamation procedures & test requirements

VIII.

Various of the requirements of Articles III, IV, V and VI, as more particularly specified in the Plan, require the issuance of permits, licenses or permission (hereafter "permits") by U.S. EPA, Ohio EPA or other regulatory bodies. CWM shall promptly apply for the permits identified in the Plan by the dates specified therein. The parties are aware of no other permits necessary for the actions required herein. The Plaintiffs shall promptly thereafter propose the issuance of such permits, with terms and conditions consistent with the Plan, as are within their authority to propose and shall support the proposal of such other permits by regulatory bodies having such authority. Subject to the presentation of new adverse evidence, the Plaintiffs shall promptly thereafter issue such permits as they have authority to issue, consistently with their proposed actions and their established procedures and shall support the prompt issuance thereafter of such other permits by regulatory bodies having such authority.

n MUST COOPERATE.

The compliance schedules and dates in this Consent Decree and specified in the Plan are predicated upon the prompt application for, proposal of and issuance of such permits. If such applications, proposals or issuances are not made by the times projected in the Plan, for reasons beyond the control of WMI, those schedules and dates shall be extended by an amount of time equal to the delay. If a dispute as to the extension of such schedules or dates cannot be resolved by the parties within 30 days after an extension is proposed by CWM, any party may petition the Court for appropriate relief.

IX.

The Findings and Orders of the Director of Ohio EPA dated June 30, 1983 in the matter of Chemical Waste Management, Inc., are withdrawn and replaced by this Consent Decree. The parties shall so notify the Ohio Environmental Board of Review and withdraw from the Board the proceeding before it regarding such Findings and Orders.

F&O withdrawal

X.

In lieu of any penalties for alleged violations of federal and state law, CWM agrees to establish a fund of $100,000 to be administered by the Plaintiffs, to monitor compliance with federal and state hazardous waste laws in Ohio, no more than one third of which may be expended to monitor compliance by CWM with such laws.

$100,000 monitor fund

XI.

CWM shall allow Plaintiffs access to the Vickery Facility to monitor compliance with this Consent Decree and all parties shall provide the other parties, upon request, with splits of any sample taken in the implementation of or to determine compliance with the requirements of this Consent Decree.

Site Access

XII.

Nothing in this Consent Decree shall relieve CWM of its obligations to comply with applicable federal, state or local statutes, regulations or ordinances or shall constitute a waiver or release of any right, remedy, defense or claim of CWM with regard to any person not party to this Consent Decree.

XIII.

This Consent Decree shall terminate upon filing of a certification by the parties that the requirements of the Consent Decree have been satisfied. If a dispute as to the satisfaction of such requirements cannot be resolved by the parties within thirty days after a certification is proposed by CWM, any party may petition the Court for appropriate relief. This Consent Decree shall terminate, in whole or in part, prior to such satisfaction, upon and to the extent that the Plaintiffs, or either of them, issues a permit embodying all or part of the requirements of this Consent Decree.

XIV.

The Court shall retain jursidiction of this matter for the purpose of enabling any party to apply to the Court for any further orders necessary to construe, carry out, modify, or enforce compliance with the term of this Consent Decree until its termination.

XV.

All reports, requests, or information submitted to Plaintiffs by CWM pursuant to this Consent Decree, shall be submitted to:

U.S. EPA

Michael J. Walker, Esq.
Assistant Regional Counsel
United States Environmental
Protection Agency
230 South Dearborn Street
Chicago, Illinois 60604

Ohio EPA

Robert Styduhar, Esq.
Legal Advisor
Ohio Environmental Protection
  Agency
361 East Broad Street
Columbus, Ohio 43216

or to such persons and addresses as may be otherwise specified, in writing, by Plaintiffs to CWM. All reports, requests of information submitted to CWM by Plaintiffs pursuant to this Consent Decree, shall be submitted to:

Jeffrey G. Miller
Bergson, Borkland,
  Margolis & Adler
11 Dupont Circle, N.W.
Washington, D.C. 20036

or to such persons and addresses as may be otherwise specified, in writing, by WMI to Plaintiffs.

CHEMICAL WASTE MANAGEMENT, INC.

By: ______________________
Jeffrey G. Miller
Bergson, Borkland,
  Margolis & Adler

UNITED STATES OF AMERICA

By: ______________________
Assistant Attorney
  General
Land and Natural
  Resources Division

____
Assistant U.S. Attorney
  Northern District of
  Illinois

____
Michael J. Walker
Assistant Regional
  Counsel
U.S. Environmental
  Protection Agency

STATE OF OHIO

By: ______________________
Jack A. Van Kley
Assistant Attorney
General

____
Robert J. Styduhar
Legal Counsel
Ohio Environmental
Protection Agency

APPROVED AND ENTERED
as an Order of the Court
this ___ day of _______,
1983.

____
United States District Court
Judge

PLAN FOR REMEDIAL WORK AND FUTURE OPERATION OF CHEMICAL WASTE MANAGEMENT, INC., VICKERY, OHIO FACILITY

I. Pond 4

CWM shall recommence the closure of Pond 4 in conformity with CWM's site closure plan, which has been filed with Plaintiffs (the "Closure Plan"), by pumping aqueous waste into the remaining ponds. The Closure Plan is hereby upgraded to include a recompacted clay liner and a leachate collection system with appropriate post-closure operation and maintenance thereof and/or treatment and disposal of leachate, and, as so amended, is approved by the Plaintiffs. CWM shall recommence closure seven (7) days after receiving approval of U.S. EPA pursuant to 40 CFR § 761.75, or at such other time as agreed to by the parties. The parties agree that the requirements of 40 CFR § 761.75(b)(3) - (5) are satisfied at the Vickery Facility. CWM shall complete closure within six (6) months after recommencement of closure. CWM shall perform post closure maintenance in conformity with the Closure Plan. No further permits are necessary for the closure of Pond 4.

II. Pond 5

CWM shall commence the closure of Pond 5 in conformity with the Closure Plan by pumping aqueous material into the remaining ponds. The Closure Plan is hereby upgraded to include a recompacted clay liner and a leachate collection system with appropriate post-closure operation and maintenance thereof and treatment and/or disposal of leachate, and, as so amended, is approved by the Plaintiffs. CWM shall commence closure seven (7) days after receiving approval of U.S. EPA pursuant to 40 CFR § 761.75, or at such other time as agreed to by the parties. The parties agree that the requirements of 40 CFR § 761.75(b)(3) - (5) are satisfied at the Vickery Facility. CWM shall complete closure within six (6) months after commencement of closure. CWM shall perform post-closure maintenance in conformity with CWM's Closure Plan. No further permits are necessary for the closure of Pond 5.

III. <u>Pond 7</u>

Pond 7 will be the last pond to remain in service at the Vickery Facility. WMI shall commence closure of Pond 7 in conformity with the Closure Plan by ceasing to accept new aqueous material into Pond 7 and beginning to pump the existing inventory of aqueous material from Pond 7 into injection wells on or before September 30, 1985. The Closure Plan is hereby upgraded to include disposal of sludges into a RCRA landfill in Pond 12 and, as so amended, is approved by the Plaintiffs. CWM shall complete closure within seven (7) months after commencement of closure. CWM shall perform post-closure maintenance in conformity with the Closure Plan. No further government permits are necessary for closure of Pond 7, except as set forth in Article VI.

IV. Pond 11

CWM shall commence closure of Pond 11 in conformity with the Closure Plan by ceasing to accept new aqueous material into Pond 11 beginning to pump the existing inventory of aqueous material from Pond 11 into injection wells on or before September 30, 1985. The Closure Plan is hereby upgraded to include disposal of sludges from Pond 11 into a RCRA landfill in Pond 12 and, as so amended, is approved by the Plaintiffs. CWM shall complete closure of Pond 11 within seven (7) months after commencement of closure. CWM shall perform post closure maintenance in conformity with the Closure Plan. No further government permits are necessary for closure of Pond 11, except as set forth in Article VII.

V. Pond 12

CWM shall commence closure of Pond 12 in conformity with the Closure Plan by ceasing to accept new aqueous material into Pond 12 and beginning to pump the existing inventory of aqueous material from Pond 12 into injection wells on or before September 30, 1985. The Closure Plan is hereby upgraded to include disposal of sludges into a RCRA landfill in Pond 12 and, as so amended, is approved by the Plaintiffs. CWM shall complete closure of Pond 12 within eight (8) months after commencement of closure. CWM shall perform post closure maintenance in conformity with the Closure Plan. No further government permits are necessary for closure of Pond 12.

VI. Treatment and Storage Tanks

CWM will replace all ponds at the Vickery Facility with a tank based, enclosed treatment and storage system of up to 10 million gallon capacity, with emissions controlled and vented through air pollution control devices, and with a landfill in that part of Pond 12 remaining after disposal of sludge from those Ponds, in accordance with paragraphs IV and V. The landfill will be used for the disposal of solidified sludges from Ponds 7, 11 and 12 and the tank-based system. To construct and operate the system, CWM must obtain a RCRA permit from U.S. EPA, a hazardous waste permit from the Ohio Board, an air emissions permit from Ohio EPA, and an Underground Injection Control permit (hereafter "UIC permit") by either U.S. EPA or Ohio EPA, as provided in paragraph VII. CWM will submit applications for such permits within four (4) months after entry of this decree and will complete the system (with the exception of the RCRA landfill) not more than eighteen (18) months after such permits are issued. In the event that such permits are not issued by April 1, 1984, the dates for closure of Ponds 7 and 11 will be deferred by a number of days equal to the number of days after April 1, 1984 that such permits are issued. Closure schedules for Ponds 7, 11 and 12 are predicated upon the operation of CWM's injection wells at full capacity 96 percent of the time. To the extent that such operation cannot be achieved, the dates for closure of those ponds will be deferred accordingly.

VII. Injection Wells

To continue operation of the injection wells at the Vickery Facility, CWM must obtain an Underground Injection Control permit (hereafter a "UIC permit") from either U.S. EPA or Ohio EPA and/or a new NPDES permit from Ohio EPA. The appropriate permit issuer for the UIC permit cannot be identified until the first of (1) the approval of Ohio EPA's primacy application by U.S. EPA or (2) promulgation of a federal UIC program applicable in Ohio by U.S. EPA. Within 60 days after the occurrence of either of those events, CWM will submit a UIC permit application to the appropriate permit issuance authority and/or an application for renewal of the Ohio NPDES permit for well injection to Ohio EPA.

VIII. Spill Response

CWM will inspect trucks entering and leaving the Vickery Facility for leaks. CWM will check the routes of trucks which, based on such inspection, CWM suspects of leaking, for a radius of three miles from the Vickery Facility and will remove liquids spilled from CWM trucks within that radius and maintain the capacity to respond to other spill incidents on a volunteer basis.

IX. Monitoring Plan

CWM will operate and maintain the groundwater and surface water monitoring stations indicated on the map attached as <u>Exhibit A</u>. It will sample from each monitoring station at the frequency and analyze for the parameters indicated on <u>Exhibit B</u>. It will report the results to the Plaintiffs monthly.

OhioEPA
State Of Ohio Environmental Protection Agency
O. Box 1049, 361 East Broad St., Columbus, Ohio 43216-1049
(614) 466-8565

Richard F. Celeste, Governor

August 8, 1986

Re: CHEMICAL WASTE MANAGEMENT-VICKERY
OHD020273819; 03-72-0191
SANDUSKY COUNTY
CORRECTIVE ACTION

RECEIVED
AUG 13 1986
SOLID WASTE BRANCH
U.S. EPA, REGION V

Mr. George Hamper, Chief
Waste Management Division
Technical Programs Section, Ohio Unit
USEPA, Region V, 5HW-13
230 South Dearborn Street
Chicago, Illinois 60604

Dear Mr. Hamper:

Attached for your further action is a Facility Management Plan for the Chemical Waste Management-Vickery, Ohio, facility. The FMP recommends that a detailed file review be conducted to determine the nature and extent of available information. The agencies would then be able to determine the next logical action to take. This will require a joint USEPA/Ohio EPA effort. Please call me to discuss our options in this regard.

Please provide me with any comments you may develop concerning the quality or quantity of this work effort.

If your permit writers have a question of a specific nature please direct them to contact the Ohio EPA District Permit Writer. Any other questions or comments of a programmatic or scheduling issue should be directed to me.

We are on track with the development and scheduling of FMP's. If you have questions, please call.

Sincerely,

Tom E. Carlisle

Tom E. Carlisle
Acting Manager, Engineering Section
Division of Solid & Hazardous Waste Management

TEC/ara

Attachments

cc: Martha Gibbons, DSHWM
Rose Freeman, USEPA
Ed Kitchen, DSHWM
Roger Hannahs, DSHWM
Ben Chambers, NWDO
Tom Crepeau/File, DSHWM (w/attachment)

1407U

Attachment 19 (Revised 7/15/85.)

Name of Preparer: Tim FISHBAUGH
Date: 6-25-86

RECEIVED
OHIO EPA

JUL 11 1986

DIV. of SOLID & HAZ. WASTE MGT.

Model Facility Management Plan

1. Facility Name: Chemical Waste Mgt - Vickery

2. Facility I.D. Number: OHD020273819 / 03-72-0191

3. Owner and/or Operator: Chemical Waste Management Inc.

4. Facility Location: 3956 State Route 412
Street Address

Vickery	Sandusky	Ohio	43464
City	County	State	Zip Code

5. Facility Telephone (if available): (419) 547-7791

6. Interim Status and/or Permitted Hazardous Waste Units and Capacities of Each Unit:

	Type of Units		Size or Capacity	Active or Closed
X	Storage in Tanks or Containers	waste receiving	3,851,000 gallons	- presently under modification + construction
		oil reclamation	2,164,000 gallons	- closed
	Incinerator			
X	Landfill		230,000 cubic yards	- proposed waiting permit
X	Surface Impoundment	Ponds 11 + 12	161.5 x 10^6 gallons	- Active (to be closed)
X	Waste Pile	Temporary Stockpile	230,000 cubic yards	- Active
	Land Treatment			
X	Injection Wells	6 wells	2.4 Billion Gallons	- Active
X	Others (Specify)	Tank Treatment	650,000 gallons/DAY	- proposed
		Surface impoundments treatment	100,000 gpd	- Active
		Filtration	644,000 gpd	- active

7. Permit Application Status: Part A Approved (HWDMS action item number)

Part B submitted, completeness review done + oked
Adequacy review done + list of deficiencies sent to company

8. Identification of Hazardous Waste Generated, Treated, Stored or Disposed at the Facility: (may attach Part A or permit list or reference those documents if listing of wastes is exceptionally long - in that case, to complete this question list wastes of greatest interest and/or quantity and note that additional wastes are managed)

Type of Waste	Quantity	Generated, Treated, Stored or Disposed (note appropriate categories)
VARious WAStes	Totalling 650,000 gal/DAY processing capacity	Treated + disposed down deep injection wells

Examples:

Sulfuric Acid mixtures	42% of capacity	
Nitric Acid mixtures	10% of capacity	
Hydrochloric Acid mixtures	16% of capacity	

(SEE PART A Documents NOT Attachment)

Certification statement

9. Review of Response to Solid Waste Management Questionaire indicates: (check one)

X Solid Waste Management Units exist (other than previously identified RCRA units) See Attachment I.

___ No Solid Waste Management Units exist (other than previously identified RCRA units)

___ It is unclear from review of questionaire whether or not any solid Waste Management Units exist

___ Respondent indicates that he does not know if any Solid Waste Management Units exist

10. If the response to question 9 is that Solid Waste Management Units exist, than check one of the following:

X Releases of hazardous waste or constituents have occurred or are thought to have occurred

___ Releases of hazardous waste or constituents have not occurred

X Releases of hazardous waste or constituents have occurred or are thought to have occurred but have been adequately remedied

___ It is not known whether a release of hazardous waste or constituents has occurred

Several releases during + before 1980 to both air + surrounding ditches + creeks with clean-up unspecified. After 1980 releases seem to have been adequately remedied

11. The facility is on the National Priorities List or proposed update of the List or ERRIS list

_______ Yes - indicate List or update

_______ No

___X___ Yes - ERRIS list CERCLIS (as Ohio Liquid Disposal)

Prior to completion of the Recommendation portion of the Facility Management Plan, the attached Appendix must be completed.

12. Recommendation for Regional Approach to the Facility: Check one

___X___ Further Investigation to Evaluate Facility

_______ Permit Compliance Schedule

_______ Corrective Action Order (may include compliance schedule)

_______ Other Administrative Enforcement

_______ Federal Judicial Enforcement

_______ Referral to CERCLA for Federally Financed or Enforcement Activity

_______ Voluntary/Negotiated Action

_______ State Action

Brief narrative in explanation of selection : I think further detailed investigation is needed to assess closed lagoons at the site especially 1, 2, 3, 6, 9, 10. Lagoons 4, 5, 7 properly closed under OEPA, USEPA approved closure plan.

2 Also to assess if closing of lagoons 6 + 10 w/ Pug mill material was in fact LANDfilling

a) If further investigation alternative is selected:

___✓___ Site inspection - anticipated inspection date _______
SAMPLING PROBABLY NOT NECESSARY _______ J Carlisle 8-8-86
State or Federal inspection _______

___✓___ Preliminary Assessment - anticipated completion date _______

_______ RI/FS - anticipated date of initiation _______

See Question #20 in the Appendix.

State/Federal_______

Private Party_______ identify party(ies)

____

A complete + accurate file data review should be done before any major investigation or new data gathering is done.

b) If Permit Alternative is Selected: Projected Schedule

Date of Part B Submission: ____________

Date of Completeness Check: ____________

Date for Additional Submissions (if required): ____________

Date of Completion of Technical Review: ____________

Completion of Draft Permit/Permit Denial: ____________

Public Notice for Permit Decision: ____________

Date of Hearing (if appropriate): ____________

Date for Final Permit or Denial Issuance: ____________

Description of any corrective action provisions to be included in permit -

____

____

____

c) If Corrective Action Order Alternative is Selected:

Estimated Date for Order Issuance: ____________

Description of Provisions of the Order to be Completed by Facility: ____________

____

____

Description of Compliance Schedule to be Contained in Order:

____

____

____

d) If Other Administrative Enforcement Action is Selected:

Projected Date for Issuance of the Order: ____________

Description of Provisions or Goals of the Order: ____________

____

____

e) If Judicial Enforcement Alternative Selected:

Date of Referral to Office of Regional Counsel: __________

f) If Referral to CERCLA for Action Selected:

Date of Referral to CERCLA Sections: ______________

g) If Voluntary/Negotiated Action Alternative if Selected:

Date of Initial Contact with Facility: ______________

Description of Goals of Contact or Discussions with Facility: ______________________________

____

____

____

Date for Termination of Discussions if Not Successful:

____

Date of Finalization of Settlement if Negotiation Successful:

____

h) If State Action Alternative is Selected:

Date for Referral to State: __________________

Name of State Contact: ______________________

Phone: ______________________

APPENDIX

The questions constituting this Appendix to the Facility Management Plan must be filled out prior to completion of recommendation elements of the Plan. The purpose of this appendix is to provide a summary documentation of the State and/or U.S.EPA review of available information on the subject facility. The intent is that a comprehensive file review will be conducted as the basis for selection of the recommended approach to a given facility. If the Appendix is completed by State personnel questions referring to available data reference information in State files; for Federal personnel the reference is to Federal files. Where questions refer to "all" available data or information and such material is voluminous, the response should indicate that files are voluminous, and then reference most telling information, for example groundwater contaminants found frequently or at extremely high concentrations should be specifically listed, and information most directly supporting recommended approach to facility should be described. If no information is available in facility files, the response should so indicate. It is also anticipated that this Appendix may be updated periodically as more information becomes available.

1. Description of All Available Monitoring Data for Facility:

Type of Data	Date	Author	Summary of Results or Conclusions
Annual integrity tests on Deep wells	various Dates Starting 1984	CWM	submitted Annually per consent Decree
monthly G.W. Analyses	various Dates since 83	CWM	Performed on existing system, new system proposed
monthly Stream Analyses	various Dates Starting 1984	CWM	Performed in accordance w/ consent decree
monthly reports	various Dates Starting 1984	CWM	submitted to update construction + compliance w/ consent decree of total facility.
monthly Deepwell reports	" " Starting 1977	CWM	includes quanity injected + Analysis of fluid injected.
Air monitoring Data	9-84	ERT	no discernable difference of PCB's + chlorinated Pesticides between background + closing of wet well.
Airmonitoring DATA	2-85/7-85	N.U.S.	Slight increases during pond 4, 5, 7 closure but no significant levels

2. Description of Enforcement Status:

Type of Action	Date	Local, State or Federal	Result or Status
F + O's	approx 12/18/72	STATE	orders complied with
FINE + cited	12-2-80	Fed + State	compliance Achieved
Fine + cited	12-9-80	Fed	compliance Achieved
Emergency Directors Findings + Orders	3-31-83	State	on file USEPA Region V compliance Achieved
Final F + O's	6-30-83	State	on file USEPA Region V compliance Achieved
State Consent Decree	5-22-84	State	compliance in progress on file USEPA
Findings + orders	9-19-84	State	shut down receiving unless OEPA present - complied
Fed. C.A.F.O	4-5-85	Fed.	violations corrected by OEPA consent decree except G.W. mont. Presently being corrected

3. Description of Any Complaints from Public: Too Voluminous to so summarized Complaints in OEPA files + Onsite Log Book

Source of Complaint	Date	Recipient	Subject and Response
Local Citizen	5-79	Cong. Eckhart	– Deep wells - OEPA promised review of wells
Traveler on Turnpike	6-81	OEPA	– odors - Letter of Response sent
Local Citizen's	6-82 thru 7-85	OEPA	– numerous complaints of odor problems especially during pond 4,5,7 closure between 2/85 - 7-85. All complaints responded to by letter or OEPA on-site inspector at facility. Also complaints on offsite spills which were inspected
Local Citizen	2-11-85	USEPA	– Asking Denial of closure cell due to Cwm reputation
Local Citizen	5-6-85	Governor office	– asking if site is safe to live by

4. Description of All Inspection Reports for Facility:

Date of Inspection	Inspector (Local, State, Federal)	Conclusions or Comments
12-2-80	State	– Ponds eroded Part A didn't reflect wastes Disposed
9-2-81	State	– no comments
8-24-82	State	– Question of landfilling potential Haz. waste from pug mill Question on training of employees prevention of envir. Emergencies
3-29-83	State	– no comments
12-13-83	State	– need to classify lab waste as Haz., better records on wastes incomming + outgoing. Better training program.
9-13-84	State	– transport inspection - compliance
9-11-84	State	– RCRA record check - compliance
12-27-84	State	– Roll off storage, G.W system inadequate: proposal sent.
12-11-85	State	– no violations
12-31-85	State	– G.W. Inspection - old wells being sampled, not adequate, new system being installed
3-18-85	State	– containers not clearly marked, contingency plan not properly implemented on 9-4-84 gas release, gw mont inadequate

5. During inspection of this facility did the inspector note any evidence of past disposal practices not currently regulated under RCRA such as piles of waste or rubbish, injection wells, ponds or surface impoundments that might contain waste or active or inactive landfills?

__X__ Yes - give date if inspection and describe observation

Question of Solids from Pug mill being put back into ponds as landfilling. Ponds 4,5,7,11,12 presently being closed + waste land filled. Some question still exists if material was used to fill in old ponds. Investigation proposed for ponds 1,6,10 already submitted.

_____ No Don't know

* According to Solid waste Mgt Unit Questionnaire Pug material from pond 9 used to backfill ponds 6 + 10

6. Do inspection reports indicate observations of discolored soils or dead vegetation that might be caused by a spill, discharge or disposal of hazardous wastes or constituents?

______ Yes - indicate date of report and describe observations

____

____

X No

______ Don't know

7. Do inspection reports indicate the presence of any tanks at the facility which are located below grade and could possibly leak without being noticed by visual observation?

______ Yes - date of inspection and describe information in report

____

____

____

X No

______ Don't know

8. Does a groundwater monitoring system exist at the facility? yes

9. If answer to question 8 is yes, is the groundwater system capable of monitoring both regulated RCRA units and other Solid Waste Management Units? See below

Explain - old system found not adequate
New system installed as per OEPA,
USEPA + CWM agreement. Some question
as to systems effectiveness in mont. old land farms although
land farms were clean, tested + shown clean.

10. Is the groundwater monitoring system in compliance with applicable RCRA groundwater monitoring standards? no

If no, explain deficiency OEPA + USEPA Have approved
installation + Mont. plan per consent decree
OEPA has not yet approved an alternate
mont. System.

11. Decribe all information on facility subsurface geology or hydrogeology available.

Type of Information	Author	Date	Summary of Conclusions

SEE Attached sheet (Attachment II)

All Documents on file w/ USEPA

and OEPA

12. Did the facility submit a 103(c) notification pursuant to CERCLA?

X Yes Date of Notification 6-9-81

____ No

13. If answer to 12 is yes, briefly summarize content of that notification. (waste management units identified, type of waste concerned)

Comment noted that information is for closed lagoons by way of sludge solidification

List Facility as Landfill, impoundment, underground injection + other (not specified).

Types of waste: organics, inorganics, Heavy metals, Acids, Bases, PCB'S, others waste oils.

14. Has a CERCLA Preliminary Assessment/Site Investigation (PA/SI) been completed for this facility?

____ Yes

X No

15. If answer to question 14 is yes, briefly describe conclusions of the PA/SI focusing on types of environmental contamination found, wastes and sources of contamination, HRS Score.

16. If available, having reviewed the CERCLA notification, RCRA Part A and RCRA Part B, it appears that: (CERCLA unit refers to unit or area of concern in CERCLA response activity)

____ RCRA and CERCLA units are same at this facility   does "RCRA unit" include SWMU?

____ RCRA and CERCLA units are clearly different units

X There is an overlap between the RCRA and CERCLA units (some are the same, some are different)

17. Description of Any Past Releases or Environmental Contamination:

Type/Source of Release	Date	Material Released	Quantity	Response

Too Voluminous to list.
SEE Corrective Action Report Summary sent to David Stringham, USEPA Region V (Nov. 7, 1985)
List describes all releases from ponds, pipes deepwells, etc.

18. Identification of Reports or Documentation Concerning Each Release Described in Item 17.

Title/Type of Report	Date	Author	Recipients	Contents
Corrective Action Summary	11-7-85	CWM	USEPA, OEPA	All past releases.
E.R. Response Sheets	numerous	E.R.	OEPA	All releases in recent past reported to Emergency Response Center + copied in District file

19. Highlight any information gaps in the file - describe any plans to obtain additional needed information.

20. Summary of major environmental problems noted, desired solution and possible approaches.

Problem	Solution	Approach	Pros and Cons
— Closed lagoons 1, 6, 10 seepage in to closure area	Ponds 1, 6, 10 to be investigated After Closure cell construction	Detail Review of all available Past chemical data + possibly new Data to be gathered	could cause stability problems of closure cell if need to excavate Stability report on file but possible questions
— Possible landfilling Pond's 6 + 10 w/ Pugmill material from Pond 9	Investigate possibly as part of above investigation	Same as above	reviewing files completely + in detail could show the need or lack of need to gather new data in all three cases. This should be a detailed analytical review by a Qualified chemist to see if data is good.
— Closed lagoons 2, 3, 9 high level PCB's (See Attachment III) 146, 124 + 34 mg/Kg respectively Pond 9 also showed oil + purple liquid during sampling.	propose a data (file) investigation + seek probable cause for more data to be gathered	Same as above	

- Attachment I -

Solid wast Mgt Uni
Question # 9

Solid WASTE Mgt UNITS OTHER THAN RCRA Permit	STATUS
Ponds 1, 2, 3, 4, 5, 6 7, 9, 10	All closed by varrow methods
Injection Well #1	Reclosed in 1986 by OEPA UIC program Approval + oversite
Oil/water facility	Facility dismantled Soils + Sludges fixed + excavated. Awaiting final decision OEPA, USEPA on Analyses of Soil results.
Land farming	Excavated + Backfilled 1984 Samples taken in 1983 Showed no Hazardous waste. 1984 Soil removed for Surface water mgt Plan.

For Appendix
Question 11

ATTACHMENT II

TYPE of Information	Author	Date	Summary of Conclusions
Monthly Mont. Well Analyses	CWM	Monthly	No noticeable effects of facility on G.W. In Assessment due to Student T-Test
Continuous Overburden Borehole Sampling Results.	Golden Associates	5-85	Showed 30-50 ft overburden of continuous Low permeability Lustrine + till over 500-550 ft Limestone. 2 minor Sand zones slightly higher permeability
Appendix II Closure Cell Design Phase II of Closure Plan for Ponds 4,5,7.	Golden Assoc.	4-85	Accumulation of all past reports as they pertain to Pond 4,5,7 Too Voluminous on file USEPA Region V
Appendix V of Above report	Golden Assoc.	4-85	Brief summary of Hydrogeology of site
Underground Injection Control Class I Disposal Well Application Vol. I + II	Texas World Operations	6-85	Regional Geology Stratigraphy at site Structure at site Seismicity Well Test of Inject wells Core Analyses Water Well Logs + G.W. mont. program Analyses
Evaluation of A Subsurface Waste Inject System Near Vickery Ohio	Underground Resource Management	3-84	History of Deep wells at site Including Geology of site, Structure Stratigraphy, Seismicity. Concluded leakage above injection zone but still under confining zone. Future Suitability was seen as good. Past operational was bad.

- Attachment II -

CWM Northern Ohio Treatment Facility (NOTF) Hydrogeological Study	Bowser Morner	5-83	Soil 40-50 ft thick permeability 10^{-8} - 10^{-9} no aquifer or significant pockets found. GW Quality found ~~good~~ below Fed Stds except Hardness, Chlorides, Sulfates. Chlorides higher under site than background levels reason unknown.
Preliminary Report on the G.W. Mont. Prog. CWM NOTF	Golder Assoc. ~~1984~~	1-84	purpose - to determine extent + nature of elevated Chlorides in G.W. at facility. no pattern to Chlorides, no plume thus appears no significant migration down from lagoons. Possible cause is connate water
Final Report: GW Mont. Prog. CWM NOTF	Golder Assoc ~~4-84~~	4-84	Same as Preliminary report - chloride elevation not due to facility.
Geotechnical + Geohydrologic Data Review	Golder Assoc	6-83	glacial deposits overlying Dolomite bedrock. glacial deposits lacustrine + till 1×10^{-8} cm/sec permeability. High fluctuation in water table due to pumping on site. Radial inward G.W gradient pattern
Summary + Characterization of Site Hydrogeologic Conditions	Golder ~~9-83~~	9-83	40-50 ft lacustrine + till clay. Limestone down to 600 ft. water table close to ground surf. although low conductivity it is not an aquifer. Limestone is uppermost aquifer. Quality of water in Limestone high in TDS + Sulfate. cone of depression due to pumping may not allow offsite migration of H_2O in upper dolomite. Gradient of limestone northwest

- Attachment III

TYPE of Information	Author/DATE	Summary
Sampling of Closed lagoons	Clean water Inc. November 1983	Summary of Data on PCB's EP TOX + DIOXIN for Closed lagoons. Ponds 1, 2, 3, 4 say Showed at least 1 sample w/ high PCB's. Pond 9 Showed no high levels but while Sampling showed oil + colored liquid in Sampling trench.

Facility Name : C WM - Vickery
Facility ID # : OHD 020 273 819

FMP APPROVAL

We have completed our review of the draft Facility Management Plan (FMP) for the subject facility. We have notified the Hazardous Waste Enforcement Branch (HWEB) and the Emergency and Remedial Response Branch (ERRB) that the FMP is under review, in accordance with Edith Ardiente's memos of December 2 and 6 1985.

(Check one)

[X] A corrective action order (or other enforcement action) was recommended, and HWEB concurs.

[ ] No corrective action order was recommended, and HWEB did not object.

[ ] A corrective action order was recommended, but HWEB did not concur at this time; we have revised the FMP accordingly.

(Check one)

[ ] Action involving ERRB was recommended, and ERRB concurs.

[X] No ERRB action was recommended, and ERRB did not object.

[ ] Action involving ERRB was recommended, that ERRB did not concur; we have revised the FMP accordingly.

(Check one)

[X] Based on our review, the FMP is hereby approved as drafted by OEPA.

[ ] Based on our review, the FMP as drafted by OEPA is hereby approved as amended.

[ ] The FMP is hereby approved as drafted by Ohio Permits Unit, U.S. EPA Region V.

Signature G D Lenssen
(EPA Staff)

Date: 7/1/86

Attachment 19 (Revised 1/15/86)
(New Version)

Name of Preparer: FRANCINE P. NORLING
Date: 6-12-86

Model Facility Management Plan

1. Facility Name: Chemical Waste Management
2. Facility I.D. Number: OH D 020273819
3. Owner and/or Operator: Chemical Waste Mgmt., Inc.
4. Facility Location: 3956 S. R. 412
   Street Address

   Vickery (Sandusky) Oh. 43464
   City County State Zip Code

5. Facility Telephone (if available): ( )

6. Recommendation for Regional Approach to the Facility: Check one

____ Site Investigation

____ Permit Compliance Schedule

____ Corrective Action Order (may include compliance schedule)

____ Other Administrative Enforcement

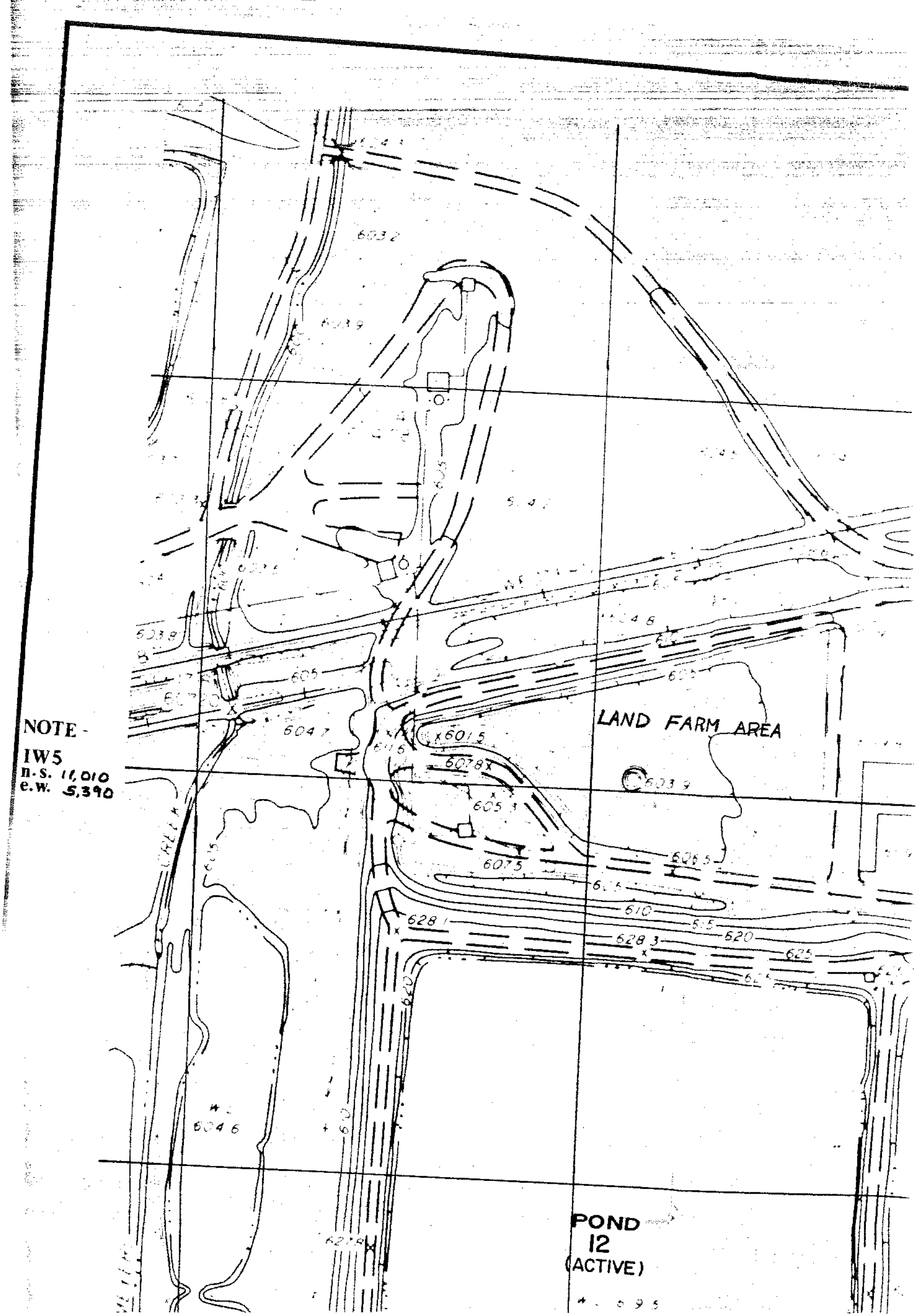
____ Federal Judicial Enforcement

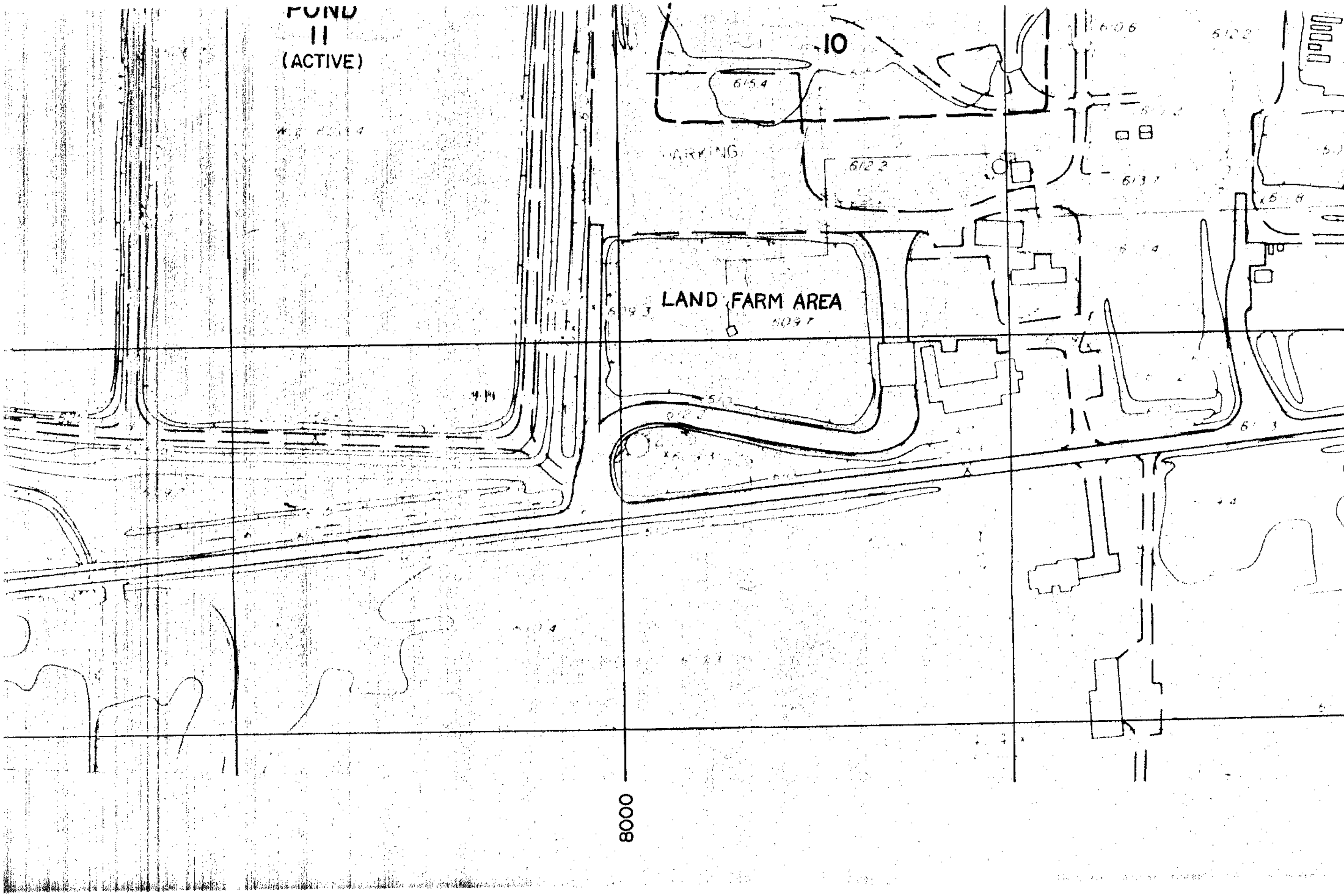
____ Referral to CERCLA for Federally Financed or Enforcement Activity

____ Voluntary/Negotiated Action

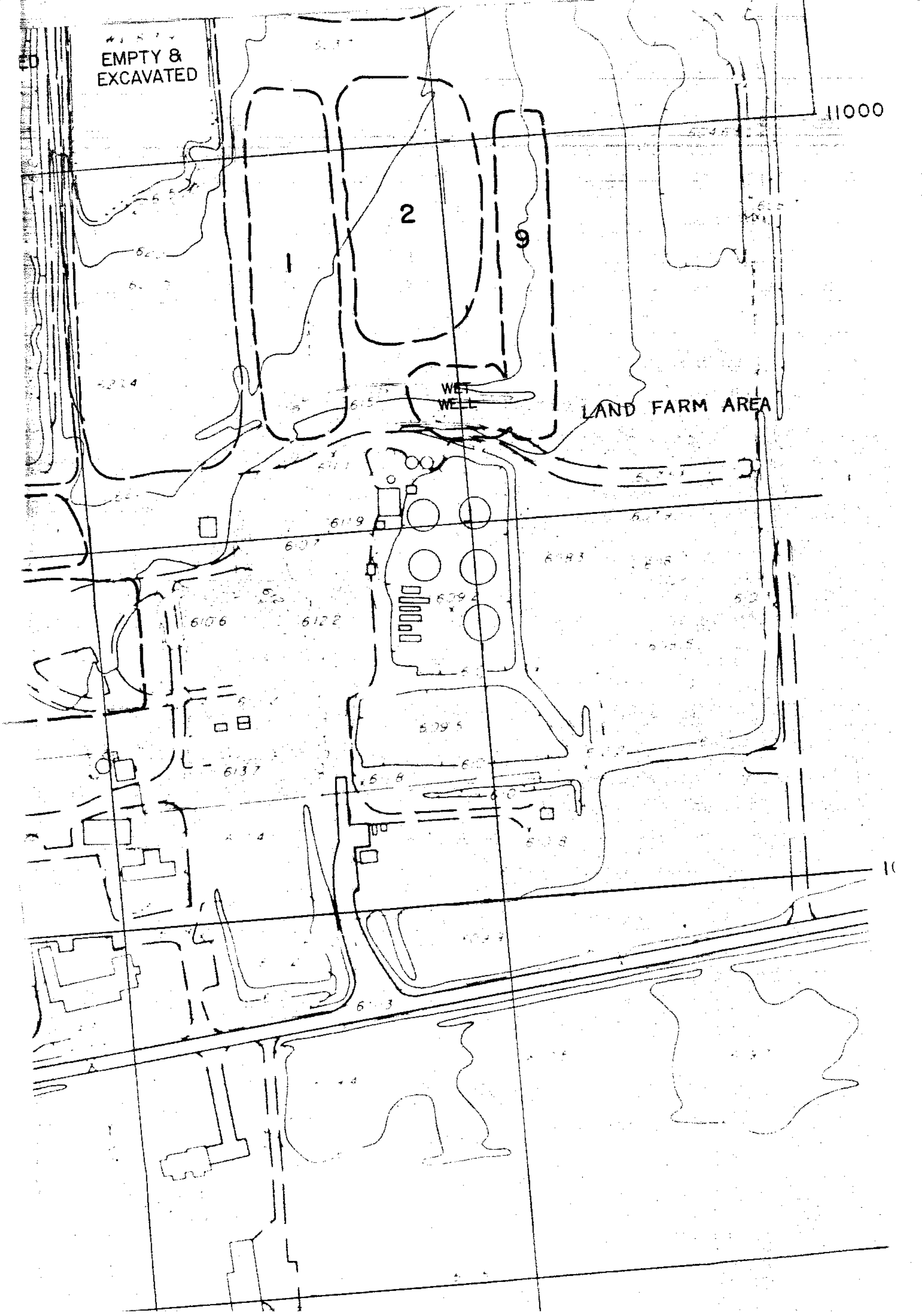
X State Action

Brief narrative in explanation of selection: State needs to conduct RFA to locate SWMUs. Facility is currently complying with a TSCA/RCRA order addressing RCRA-regulated units.


NOTE -
IW5
n.s. 11,010
e.w. 5,390
LAND FARM AREA
POND
12
(ACTIVE)



POND
11
(ACTIVE)
10
615.4
PARKING
612.2
613.7
LAND FARM AREA
609.7
609.3
8000


EMPTY & EXCAVATED
1
2
9
WET WELL
LAND FARM AREA
11000